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ON DISEASED TESTICLES.

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IN offering a few remarks on the above subject, I intend confining myself to what has occurred in my own practice, and will premise with no scientific dissertation on the construction and uses of the organs referred to.

I have always taken a deep interest in everything relating to the urinary and generative organs of all the animals usually found in the farm-yard; and having during the last year or two met with a good number of interesting cases of this kind, I consider it as well to put some of them on record, restricting myself mostly to the testicles.

1. *Scirrhous Testicle.*—This is not at all an infrequent abnormality, of which I will note four cases; two bovines, one equine, and one asinine; in the ass, the horse, and one of the cattle, both testicles were scirrhous. Nothing wrong was suspected in the two former until castration was proceeding, when it was discovered that the testicles were abnormally hard, and refused *to pop out* when the usual bold cut was made through the scrotum. The scrotum, tunics, and testicles were all in one, so to speak, and the testicles had literally to be dissected out, as also the cord for fully three inches, and the whole (vascular and non-vascular), was then torsioned off in the usual way. This ass (three years old), and the colt (yearling), both made a grand recovery; neither requiring any after treatment. The testicles in both these cases were quite hard and semi-cartilaginous, and in the ass, were smaller than they ought to have been. Owing to the testicles, tunics, and scrotum being all in one mass, I formde an idea that this abnormal state of matters had resulted from some accidental injury.

As regards the calf (three months old), with the two scirrhous testicles, these organs were too large, very hard, considerably misshapen, and, I am convinced, were caused by the presence of colonies of the ray-fungus; and this opinion is borne out by the fact that this calf's mother has developed a large lump at the angle of the lower jaw, which is of fungous nature, and which I am successfully treating externally with iodine, and internally with doses of potassium iodide. The other calf, with the single diseased testicle, was only a week old when I operated on it, and at that early age the testicle was larger than the biggest turkey's egg I ever saw! Before the operation, this erratic testicle hung fully three inches below its normally-sized neighbour, so that the poor little calf presented a rather funny appearance. This testicle was very much misshapen and very hard, but had a great many *soft spots* all through, so that it is likely to have also been of fungous origin; but how the fungus got access to that organ is beyond my comprehension, as the creature was born with the enlarged testicle. Both these calves got successfully over their troubles, but the little one required repeated doses of brandy after the operation, otherwise I believe it would have succumbed.

The testicles in all the four cases noted were quite hard, and when cut up pale in colour, having no resemblance to the usual soft fleshy body of a normal testicle. Those of the ass were much smaller than natural; of the colt the ordinary size; but in the two calves large and misshapen, and with several soft spots throughout their enlarged and indurated bodies.

2. *Tubercular Testicle.*—I have several times encountered this abnormality in bovines, and put on record the extraction of such up to eight pounds in weight; but what I chiefly want to put before the profession just now is a case of tubercular testicle in a yearling colt. On throwing this colt and endeavouring to cut out the first testicle, I found it would not slip out as usual, being firmly attached to the inside of the scrotum; the whole body and appendages of the testicle were immovably adherent to the scrotum, so I proceeded in the best way possible to dissect the former away from the latter, and having done so, I found more than three inches of the whole cord in a like abnormal state which I gradually worked clear, put on the clam, and torsioned off the whole diseased mass, vascular and non-vascular alike. With a little attention this colt came all right. This is the first case of *tubercle* in the equine testicle which I have seen or heard

of. This colt, when a foal, had, along with three other youngsters of various ages, a bad attack of strangles.

I examined this abnormal equine testicle in company with a neighbouring *confrère*, and we thoroughly satisfied ourselves as to the nature of the disease invading it.

3. *Hydrocele*, caused by irritation of a disease in the *tunica vaginalis propria*, resulting from the presence of peculiar fleshy excrescences on the surface of the testicles, is by no means an infrequent occurrence in young entire colts. I don't here in any way refer to the hydrocele resulting from irritation or injury to the *tunica vaginalis reflexa;* and I consider the peculiar feature of this hydrocele to which I chiefly refer, to be the fleshy excrescences, more or less extensive, observed on the outside of the testicle or testicles.

In two cases of this peculiarly-accompanied hydrocele, I found a great many parasites, resembling small strongyles present in the abnormally distended scrotal sac, and I actually thought these fleshy spots and excrescences were *caused* somehow by the irritation produced by these erratic parasites. At one time these fleshy excrescences would have been called "Fungous Growths," but I don't think, in the present day, such appellation admissible.

The chief thing to be noted is that generally no bad effects followed the excision of these abnormally decorated vesicles, but in one case where the number of parasites was uncommonly great, death from peritonitis and abdominal ascites followed castration, and innumerable parasites were found in the abdominal cavity; hundreds of these fleshy spots were seen on the peritoneum all along the intestinal canal; so that I am still more inclined to connect the *fleshy spots* with the presence of the parasites.

I was once consulted about a queer case of this sort in a yearling shorthorn bull; one of his testicles was a great deal bigger than the other. An empirie, who used to castrate the calves at the farm, being consulted, was of opinion that he had an abscess to deal with, and confidently introduced his knife rather freely into the distended scrotum; the result rather staggered him—a large quantity of clear fluid immediately escaped, and when the distended scrotum collapsed, a red sponge-like fleshy material jutted out at the incision in the scrotum. This finished the empirie's career at that farm. My advice was either to extract the testicle or sell the bull (he was very fat) for slaughter. The latter course was adopted. I intend resuming the consideration of this subject at some future period.

STERILITY IN MARES AND ITS RELIEF.

BY W. F. SMITH, M.R.C.V.S., LEXINGTON, KENTUCKY, U.S.A.

FAILURE on the part of a mare to breed is due to various circumstances and causes, some of which are of a purely temporary nature, readily controlled, and admit of a comparatively easy correction, while others resulting from a far more disorganized condition of the generative apparatus necessitate all the skill and science of the practical veterinary gynæcologist to be called into play to rectify. At one time barren condition represented just so much non-value of the mare affected, with unrealized anticipation and loss of time and money, the remedy for which seemed difficult to attain; in these latter years, however, with progress and the coming to the front of veterinary gynæcology as a special study, the majority of cases are found to admit of alleviation when such is carried out on a more or less scientific basis, with suitable lines of treatment. While specialists on sterility in the human family are apt to remark on its remedial measures, proving so notoriously unsatisfactory, it must be remembered in animals this rule can by no means be so strictly applied, as here the patient dealt with has always been and is kept under far more natural conditions of life in every way, and no abuse of those delicate organs involved; consequently, though successful treatment dependent upon particular causation with us does not always reach fond expectations, yet the percentage attained is sufficient to afford general satisfaction to the breeder, and every encouragement to the professional man.

At times the non-impregnation of a mare will, of course, be due to a physical deficiency or lack of perfect functionality on the part of the stallion she is mated with; while such instances are comparatively rare, yet may be found every season, and, when diagnosed, will admit of ready correction in the change of male. Enumerated with the lesser causes of sterility where suitable remedies can be easily determined, we can have: a lack of general good health in the mare herself, as putting to the stallion too soon following a debilitating sickness; a need of proper acclimatization, as is frequently noticed in mares imported into this country from Europe, sent from the Eastern States to the West, from California, or the mountain ranges of Montana to Kentucky, or the reverse; animals which are healthy in every way, and need only time sufficient before conception will take place. A want of what

may be termed necessary compatibility of natures of the two animals mated, and where a change of stallions has to be made to gain the desired end; breeding young mares at too early an age; too close in-breeding; also putting mares—thoroughbreds particularly—to breeding purposes too soon after hard racing or campaigning before Nature, which has had speed developed at the expense of the entire organism, generally has had time to recuperate exhausted energies under more natural conditions of life; with this latter time, good care and feeding, with range at pasture, work effectually.

Of the more serious causes of sterility, having given special attention to the subject for some years, during which period I examined by means of suitable instruments the generative organs of a considerable number of both barren and fertile mares, I have found such to be due to abnormal conditions, usually located at the cervix, or neck of the womb. These conditions may either, firstly, impede or prevent the entrance of seminal fluid into the cavity of the womb after emission from the stallion; or, secondly, destroy the vitality of such semen in the vagina, or as journeying through the neck of the womb (for normally it has to journey by movements peculiar to itself and peristalsis of the structures with which it is placed in contact, and is not propelled through direct from the penis of the stallion as commonly supposed), or the active elements of the fluid may be killed out after arriving in the cavity of the womb itself. Actual disease of the lining of the uterus, as a general or corporeal *endometritis*, while met with, is found much less frequently, and, if chronic, quite obstinate to treat; trouble also of the ovaries is somewhat rare, yet may be come across, as are many other peculiar and obscure causes of sterility in the handling and special examination of a number of mares.

Among those causes which will act as impediments to the entrance of semen into the womb, one of the most general is that of constriction of its cervix, or neck, at either the external or internal orifice of its canal—most frequently the latter—and associated with which is usually a rigidity or spasmodic state of its muscular fibres. It is mainly found in young mares of a highly nervous temperament which have never had a foal, yet it is met with also in others where additional trouble of the generative organs at the same time exists. Misconstruction—simple, spasmodic or rigid—may usually be recognised by the peculiar feel imparted to the touch on examining the parts at the time of putting the mare to the stallion. When

detected it is here the groom will generally proceed to extreme measures, somewhat roughly and often with dirty fingers by way of amelioration, frequently unsuccessfully, too, for the simple reason it is scarcely possible to diagnose correctly by such digital exploration at which portion of the structures involved the constriction may actually exist, or even to properly remedy with the fingers if found. The examination for this condition should needs be made with suitable instruments, and to be both carefully and delicately undertaken, lest undue irritation of the most sensitive structures here is set up. The trouble, when located, must be suitably corrected, dilatation or other measures being performed by aids of proper instruments, gradually and slowly, and with antiseptic precautions in order to be generally successful.

Another cause of sterility I frequently meet with in mares of advanced age, in which the semen fails to gain ingress to the womb (particularly should the animals have been hard campaigned and never produced a foal), is that of a conical-shaped and elongated neck of the womb, with very small cervical canal. This structure will either protrude back into the vaginal cavity, resembling a long, slim finger, standing out or dropped down, pointing on the floor of the passage. In service with the stallion it is consequently either pushed to one side or more fully pressed down, almost double backed on itself, on the floor of the vagina, whereby there is no perfect contact of the glands penis of the male with its corresponding structures in the female. The remedy for this condition of the parts is an operation, whereby they are placed more in accordance with their normal state, and which has to be followed by some careful after-treatment and repeated dilatations with instruments.

An abnormally or highly-sensitive state of the vaginal passages—vaginismus—producing spasms and acute straining at the time of or immediately subsequent to copulation, is not rare in creating sterility, and rectified either by operative interference or local and constitutional treatment of a sedative character. Ulcerations of some portions of the neck of the womb likewise, are far more general than supposed in mares which have at some time suffered from retained membranes after foaling, abortion, or protracted and bruising labours at the time of foaling; these, by their existence and interference with the physiological functions of the structures involved, have much influence in creating the barren state, and need careful scientific treatment before any other condition than sterility can result; then detection of these ulcers

at times need the most delicate and searching examination. Very frequently is laceration or a torn state of the neck of the womb produced by some difficult act of foaling, which in healing leaves an irregularly-shaped tough scar after altering the natural form of the structure entirely; this, according to the degree of injury, will more or less impede the passage onward of seminal fluid, and the parts may require to be surgically repaired and put in a natural position again to relieve the consequent sterility thereby created. Occasionally, in my experience, I have found a curtain or membrane to exist on the internal orifice of the neck of the womb, that part opening directly into the uterine cavity itself, and which effectually prevented the entrance of all semen, while the natural secretions of the womb were also retained. This condition is only diagnosed, and also remedied, by the introduction of dilating instruments, removal of the membrane, and antiseptic cleansing of the womb; this will put the parts in such a state as to ensure a successful conception.

Probably the chief causes of barrenness, and decidedly the main ones in destroying vitality of the semen, are found in the nature of the secretions and discharges from some portion of the generative passages. These, when abnormal, are unfavourable to the life of the spermatozoa, and thus the vital seed elements are speedily killed out, even after they may have gained an entrance to the cavity of the womb itself. That discharge known as leucorrhœa is the most frequent. Too great an acidity of the normal secretions of the parts, or its opposite condition, too intense an alkaline nature, also have this effect, and in the case of these two latter the examination needs to be searching before the precise cause of the barrenness is determined. For such there is no direct line of treatment, but the same is regulated by the circumstances controlling each individual case. It may here be remarked that one form of leucorrhœa is far more common than is usually suspected, in which the discharge, small in quantity and of a thin nature, collects in the vaginal passages, and only passing away each time the mare strains to urinate; hence, non-discoverable in the majority of cases till the parts are laid open with a speculum for the purpose of examination. While existing this also has a strong influence in creating sterility. Endometritis, or chronic inflammation of the lining of the womb; thickening or hardening of the cervical and uterine structures; displacements; the presence of tumours, or other abnormal growths and diseases of the ovaries—conditions I have all come across in my experience, and which are great

factors in creating sterility—I am unable here to discuss, beyond stating that when barrenness is thereby produced some, not all, are amenable to measures of relief.

Artificial impregnation by means of a suitable syringe, has proved in instances a means of controlling the sterility of some mares, and also aided the breeder in reducing the call upon the powers of his stallion. The bar to its general success has been an indiscriminate adoption of the measure by some men in any or all cases of barrenness, without due regard to the exciting causes of that condition. There is in every instance the absolute necessity of having healthy organs in which to place the seminal fluid, in order to ensure a proper conception and subsequent development to a fœtal maturity, as under no circumstances in the vast economy of nature is provision made for seed to properly flourish in an unsuitable soil. Hence it must be remembered that to diagnose the necessary normal conditions of the female generative apparatus, their proper tone and natural state of secretions, as well as to an extent also of anatomical structure, become essential as the first important element contributing to the success of this (or even any other) remedial measure for sterility.

PREVENTIVE INOCULATION.*

BY H. G. BOWES, M.R.C.V.S., EASTWOOD, NOTTS.

(*Continued from page* 24.)

ANTHRAX.

INOCULATION against anthrax is not practised at all in this country, the reason being that the disease does not exist to so great an extent as to justify its application. In many countries, however, as France and Australia, where it is such a great scourge, inoculation is carried out to a large extent and with much success.

Sanderson and Duguid were the first to recognise that the virulence of anthrax virus might be modified; this they found by inoculating cattle with virus from a guinea-pig dead of anthrax, and this induced a serious form of the disease, but the animals recovered and were rendered immune for a time. Dr. Greenfield, of this city, also made some experiments to further elucidate the matter, but to Pasteur is due the credit of first thoroughly investigating it.

Pasteur's method of attenuating the virus consisted in exposing it to air at a temperature of 42°–43° C. for several weeks, when he found that it entirely lost its virulency, and

* An essay read before the Edinburgh Veterinary Medical Society.

if kept long enough the bacilli then died and underwent disintegration. When treated in this way no spores were formed. Pasteur attributed the loss of virulence to the action of oxygen.

He also found that if the temperature were reduced to 35° C. great vegetative activity was set up and spores were formed. He maintains that the attenuated properties of the bacilli were transmitted to the spores, and that the spores could be preserved for any length of time; so that on starting fresh cultivations with them, an attenuated virus would be produced. Other observers, however, deny this, and maintain that an attenuated virus, if used to start a fresh cultivation with, under ordinary circumstances, will become virulent again.

In practically testing the efficacy of his attenuated virus, Pasteur gave two inoculations—first, with the virus that had been exposed for 24 days, and then with the twelve days' exposure; by means of this he found that he gave immunity to cattle and sheep against a virulent dose. The two inoculations are necessary to effectually give immunity, for if only the weaker be used—that is, the 24 days' cultivation—then the inoculated animals would only be imperfectly protected, and would probably succumb to a virulent dose; whereas if the 12 days' cultivation were used alone, then many would succumb to it.

Pasteur's attenuated virus is prepared at the Pasteur Institute, and can be obtained for inoculation purposes. As I mentioned before, Pasteur attributed the attenuation to the action of oxygen; Chauveau, however, showed that heat alone would give the same result without the admission of air, and on this he based his method of attenuating the virus by enclosing it in small glass pipettes and plunging them into water at 50° C., keeping them there for a quarter of an hour; this constituted the first vaccine; the second was only heated for nine or ten minutes.

Other methods of attenuating the virus have been tried with more or less success, such as treating with weak corrosive sublimate solution, or weak carbolic acid.

Sheep are generally inoculated on the inside of the thigh, cattle on the inside of the ear.

In some parts of Australia where anthrax exists to a very large extent, amongst sheep especially, inoculation is very successfully employed, Pasteur's attenuated virus being used; the losses from inoculation are inconsiderable, often as low as 1 in 2000. The great objection to it is the short period for which immunity is gained, some saying that it only lasts for about nine months.

Black Leg.

It has been found that if a cultivation of the bacillus of symptomatic anthrax is injected into an animal intravenously, there is a slight febrile disturbance, and the animal is rendered immune from the disease, whereas if injected subcutaneously, it causes the disease to develop in all its virulence.

It is said by some, however, that if injected in a small dose subcutaneously, the same effect is gained as by intravenous injection. The safest plan is, however, the intravenous inoculation, care being taken not to allow any to get into the subcutaneous tissue. Inoculation against this disease is not much practised, although if it be as successful as is maintained, I should say it would be very beneficial, if practised on cattle grazed on land where it is very prevalent.

Foot-and-Mouth Disease.

It is said by some that the virus of this disease, if injected intravenously, gives immunity against the malady, whereas if introduced on to a mucous membrane, it gives rise to the disease.

Many authorities, however, maintain that one attack of the disease does not give immunity against a second, and if this be so, then inoculation could not give complete immunity. If immunity is gained, it is probably only for a short period, and therefore scarcely justifies inoculation.

Swine Plague.

Space will not permit me to say much of this disease, but it is interesting to know that both Dr. Klein in this country, and Dr. Billings in America, have succeeded, by making artificial cultivations of swine plague virus, in obtaining an attenuated virus which, on inoculation into healthy swine, produces only slight febrile disturbances, and renders them immune from the disease.

Hydrophobia.

Some may object to this disease being introduced into an essay on preventive inoculation, as the term inoculation is here used, in the treatment of the disease in man, not in its prevention; but I would ask you to remember that the manner in which it acts is to acclimatise the tissues to the virus, before the virus introduced by the bite of the dog has had time to develop. It is therefore essentially a preventive measure, more than a curative one.

Pasteur found that by passing the virus of this disease through monkeys, it became attenuated, and by passing through rabbits, it became more virulent. After passing through a number of monkeys, he obtained a virus which had scarcely any virulent properties at all, and on passing this again through dogs or rabbits, it gradually regained its former virulence.

It now occurred to Pasteur that if he prepared a number of viruses of gradually increasing strengths, by inoculating an animal successively with these, commencing with the weakest, and gradually increasing the virulence of the inoculation, he would gradually accustom the body to the virus, each inoculation protecting it against the next more virulent dose, until it would resist a very virulent dose.

In his first experiments he obtained an attenuated virus by passing it through a monkey, and then more virulent viruses by successive inoculations of rabbits, each rabbit supplying a more powerful virus than its predecessor. He then inoculated dogs with these viruses, commencing with the weakest, and gradually increasing the intensity until he had inoculated with the most virulent. In these experiments, about three-quarters of the dogs were protected against the virulent doses, and passed successfully through the series; this, I think, you will allow was very good for the first attempt.

He next observed that the spinal cords of rabbits, dead of hydrophobia, gradually lost their virulence on being exposed to dry air for some time; this led him to try a new method of attenuation.

He first obtained a virus of maximum virulence, by passing it through a number of rabbits, then took the spinal cord of these virulent cases, and hung it by a sterilised silk thread in a flask, containing some caustic potash to absorb the moisture, taking care that no septic organisms were present; in 15 days he found the cord had almost entirely lost its virulence.

He then prepared cords of different degrees of attenuation, by exposing them for different lengths of time, and inoculated dogs with fragments of them, commencing with the 15 days' exposure, then the 14, then 13, and so on, until the one day old virus was used, the whole series of inoculations lasting 10 days. In every one of these cases the dogs were protected, the protection lasting probably about two years.

Pasteur now thought that, as the period of incubation of this disease is generally rather long, if a patient who had been bitten by a mad dog were operated on soon enough, he

might be protected against it before the virus from the bite had time to develop. In 1885, he experimented on a child, which had been so badly bitten by a mad dog that it was thought to be impossible for it to recover; he inoculated with a series of 15 different strengths of virus, the whole series extending over 10 days, and the child recovered. What anxiety it must have caused Pasteur when experimenting on his first human subject, knowing how much was at stake; if the least hitch had occurred, and the child died, what a volume of abuse would have been poured on his head, and we all know well that even though the principle of it should be correct, how easy it is for an individual case to go wrong. Then again, consider the unfavourable nature of the case itself, which was as bad as it well could be, in fact, I take it that he dared not have experimented except the case were otherwise hopeless. Then when the case recovered, what a triumph for him; how happy he must have been after all the anxiety of watching the case, to find that his first attempt was an unqualified success.

I may say that other men have tried modifications of Pasteur's process, but this is still the method carried on at the Pasteur Institute. The objections raised to Pasteurism are:—

(1.) That persons who undergo the treatment have not been bitten by mad dogs at all, as many people imagine that if they are bitten by a dog, it must be mad; and they rush off to Paris to undergo Pasteurism;

(2.) Some persons who are bitten by mad dogs do not develop the disease;

(3.) That if they do develop the disease, it may be only a mild attack, and they recover from it; and

(4.) Some even go so far as to say that persons who would otherwise not have taken the disease, may have it from the treatment, and die from it.

These are all worthy of consideration, but I think until further proof is given against Pasteurism, we may assume that it is successful, and Pasteur deserves the thanks of mankind for thus having minimised a great evil.

Before concluding, I would like to draw your attention to the latest development of inoculation, viz., as an aid to diagnosis. Experiments have been made both with tuberculin and mallein, in order to establish their utility as diagnostic agents; but at present the results are not entirely favourable.

Professor Fraser, of the Edinburgh University, who was the first in this country to obtain a supply of tuberculin, says that it is absolutely useless, even as an aid to diagnosis, as its effects on diseased and healthy animals are not constant.

A CONTRIBUTION TO THE STUDY OF DISEASES OF THE NERVOUS SYSTEM.

BY PROFESSOR H. J. P. THOMASSEN, VETERINARY SCHOOL, UTRECHT, HOLLAND.

(*Continued from page* 15.)

PROFESSOR LEISERING* makes mention of a dog which was suddenly affected with paresis of the left limbs, the right ones becoming more stiff. The animal lay constantly in its cage, even while it was feeding. The right eye was deviated outwards, but the vision was not disturbed; the neck was inclined to the right, the nose being directed to the left and upwards, so that the right ear was below the head. The patient could not walk in a straight line, but always moved to the right. When no longer able to stand it was killed. At the autopsy there was found a certain quantity of fluid in the sub-arachnoidean cavities, especially towards the cerebellum. The right half of the pons Varolii was reddish-grey in colour, and was more elevated than the other half; the medullary substance was so softened as to be almost fluid; this softening extended to the cerebellar peduncle and to the right hemisphere of the cerebellum, and the grey substance could no longer be distinguished from the white.

Under the designation of "Cerebral thrombosis," Veterinary-Surgeon Boellmann describes the following case of alternate paralysis.† A mare, nine years old, commenced to show a certain degree of weakness in her movements, and had a tendency to go to the left when she ought to have gone in a straight line. Gradually progression became unsteady and stumbling, and the animal deviated more and more to the left. The neck was completely bent round to the left and depressed, the head being inclined to the same side, and the nose carried to the right, while the left eyelid was drooping, and the opening of the nostril on the same side was narrower. The prehension of food was effected with difficulty, and mastication was slow and laboured. An ulcer soon appeared on the left cornea, and it was not long before the right limbs began to be paralysed. The right anterior fet-

* Bericht uber das Veterinärwesen in K. Sachsen, 1868.
† Recueil de Méd. Veterinaire, 1884.

lock became so flexed that the foot almost rested on the front of the hoof, while in the corresponding hind limb all the articulations were flexed to such an extent that the animal could not place the foot on the ground. Pricking with a pin showed that sensation was not impaired at any part except the left eyelid and lower lip, which were quite insensitive. The pulse numbered 78 beats, with a temperature of 38·2° Cent. Vision was slightly impaired.

During the last eight days the animal could not rise, and constantly lay on its side. The mouth was open and the tongue pendulous, or alternately protruded and drawn into the mouth, while the upper jaw deviated to the right, and the lower to the left.

The following necroscopic lesions were noted; towards the middle of the left hemisphere there was a greenish patch about the size of a florin, and the pia mater was closely united to the arachnoid. The left lobe was less consistent, particularly in its white substance. In the *Vena Galeni*, at the point where it bends round the posterior extremity of the corpus callosum, there was found a fibrous clot which had a reddish-yellow colour, was soft, and was elongated in the direction of the vessel, which it completely obstructed. In following the course of this vein, which enters the falciform sinus, there was discovered a more voluminous thrombus; this was a centimetre-and-a-half long, the diameter exceeding the calibre of the vessel; it was of a deep brown tint, much firmer, and evidently longer organised than the other. It was situated in the fissure that separates the left hemisphere of the brain from the cerebellar lobe, and was found in contact with the *corpus striatum* of the same side. An examination of other parts of the cerebral substance did not reveal anything notable.

Professor Mathis observed the following case in the Clinic of the Lyons Veterinary School.* A bull-terrier dog, aged eight months, after being affected with distemper, suddenly began to move badly, stumbling and staggering, and with a marked tendency to turn to the right, the head being inclined upward and the nose slightly directed to the left; there was convergent strabismus of the right eye, great diminution of sensibility over the whole of the right side of the face, of the trunk, and principally of the limbs of the left side, with difficulty in moving the jaws, and slight trismus. Soon there ensued symptoms of rolling or "barrel movement," the dog rolling in a contrary direction to that of the deviation of the head,

* "Journal de Méd Vétérinaire et de Zootechnie," December, 1887.

and in a few days more the sensation of the right portion of the face was completely abolished; there was also noticed slight contraction of the left thoracic limb. In a few days more sensation returned to the trunk and limbs.

At the autopsy there was seen a greyish-brown patch, somewhat depressed, on the medulla oblongata at the point of emergence of the trigeminal nerve. In making transverse sections, it was noticed that this patch of inflammatory softening extended as far as the half of the substance of the medulla at this point; in front the lesion did not extend into the cerebral peduncle, and behind it gradually became lost in the right posterior cerebellar peduncle; above, the grey tint was infiltrated into the three peduncles of the cerebellum, but more especially into the base of the middle peduncle.

It is not necessary to cite more instances of hemiplegias and alternate paralyses. But before venturing on the analysis of the facts observed, and drawing practical conclusions therefrom, it may not be amiss to detail some personal clinical observations.

Called in consultation in November, 1888, upon an eight-years-old mare, I obtained the following information respecting her condition from the veterinary surgeon who had been treating her. Having been requested to see her on September 24th, he observed the following symptoms on his first visit; Appetite normal, though there was some difficulty in mastication, and an accumulation of forage had taken place between the molars and cheek on the right side; the right ear was pendant and paralysed; there was ptosis of the right eye, and inclination of the nose and lips to the left side. These symptoms denoted complete paralysis of the right facial nerve. It appears that there was a slight swelling on the right side of the forehead, the result of an injury. Eight days previously a neighbour of the owner had used the horse and returned it in almost the same state it then was. The animal's gait was staggering, and when pressed to walk fast it almost fell. There were no febrile symptoms. Gradually it improved to such a degree that on October 14th it could be worked, although the paralytic symptoms about the head persisted. After working for two hours on October 19th, the signs of weakness in the limbs became again apparent, and were even more marked than before. From this time no amelioration had taken place in the state of the horse until the day on which I saw it, November 18th.

On that date it had complete paralysis of the right facial nerve, and hemianesthesia of the face on the same side, and to

such a degree that irritating the cornea—which was a little opaque and had a slight ulcer—did not produce any reaction. When the mare was taken out of the stable and walked, she was so feeble on her left side that the two limbs were dragged along the ground and the joints flexed when they should have sustained the weight of the body, a circumstance which caused the animal to go somewhat sideways. The sensibility of the trunk and limbs was normal.

This was, therefore, a case of alternate paralysis, probably due to a hæmorrhage caused by some injury to the cranium. The seat of the lesion was suspected to be the pons Varolii, a diagnosis which was afterwards proved to be correct.

Treatment with veratrine was continued to December 12th, but brought no improvement. On that date, notwithstanding the excessive cold, the mare was left out at pasture day and night. Gradually movement became more steady and the weakness of the limbs disappeared, so that in February the animal was again put to work. The monoplegias of the head had partially disappeared—that is, the ear was no longer pendant and the eyelid was again winked, though the muscles of the nose and lips scarcely yet performed their function. In the meantime a *neuro-paralytic* ophthalmia had appeared; the cornea of the right eye had been perforated, and the ocular globe finally became totally destroyed.

The following case shows much analogy to the preceding, and it is all the more interesting as the necroscopic lesions can be furnished.

In June, 1892, a mare of German breed, aged five years, was brought to the clinic of the school in an ambulance. It was reported that she had been suddenly seized with paralysis on the previous evening, though up to that time she had been in excellent health. During the first day she kept in the recumbent position, generally lying on her side; only from time to time she could be raised to the sternal position, and it was on these occasions that she took food, which consisted of green forage. Mastication was effected with some difficulty, as the food collected between the molars and the cheek of the left side, owing to paralysis of the left facial nerve. The left ear was pendulous, and the eyelid of that side covered the greater part of the cornea, the ocular globe itself appearing, on an attentive examination, to incline towards the inner angle. When attempts were made to raise the mare, she appeared to be paralysed in the posterior extremities.

On the second day the mare was successfully lifted on to

her feet, when it was noticed that she was markedly feeble on the right side, though sensibility there was not blunted. The appetite had improved considerably since the previous evening, and defecation and micturition were normal. After midday on this day the mare was able, with support, to make some steps in the loose-box. The paresis of the right limbs was evident, as the feet were dragged along the floor. The temperature did not exceed 38·5° Cent., and the pulse averaged 55 to 60 beats. On the evening of the third day the animal was lying down—not again to rise; during the whole of the night she struggled so much that next morning her head showed traces of serious contusions, notwithstanding all the precautions that had been adopted to prevent such an accident. The pulse and respirations constantly increased in frequency, the latter marking an extreme degree of dyspnœa, while an abundant perspiration persisted during the night. All attempts to allay the mare's sufferings were without avail, and she succumbed in the course of the day.

Diagnosis.—This was a case of *alternating paralysis.* Taking into consideration the complete paralysis of a facial nerve and the abducentes nerve of the left side, along with the paresis of the right side, there was reason to believe in the presence of a lesion somewhere in the *medullary* portion of the pons Varolii; and looking at the sudden evolution of the disturbance, the cause of the accident might be ascribed to a hæmorrhagic deposit which produced at the same time, perhaps by inhibition, disturbance in the function of the nerve centres in the medulla oblongata, to which the sudden death of the animal might be attributed.

At the autopsy the diagnosis was confirmed. Besides the lesions of quite a secondary order, due partly to the circulation disturbances, the forced decubitus, and the injuries to the head—such as great injection of the vessels of the cerebral pia mater, we met with the supposed hæmorrhagic centre in the pons Varolii; this had invaded a large section of the left half of its medullary portion (Fig. 2), and extended to the middle lobe of the anterior portion of the cerebellum, as well as to the medulla oblongata. It was not really a hæmorrhagic deposit, however, but a patch of softening, evident even on macroscopical examination, by its yellow colour and the softness of the nerve substance.

ANALYSIS OF THE CLINICAL OBSERVATIONS.

Among the localised affections of the brain, the lesions of the pons Varolii offer the greatest chance of being diagnosed

during life, especially when they are betrayed by an *alternate paralysis*. Described at first in man by Gübler, about 1856, and by Millard in 1859, this special paralysis is more especially characterised by a *complete facial hemiplegia* on the

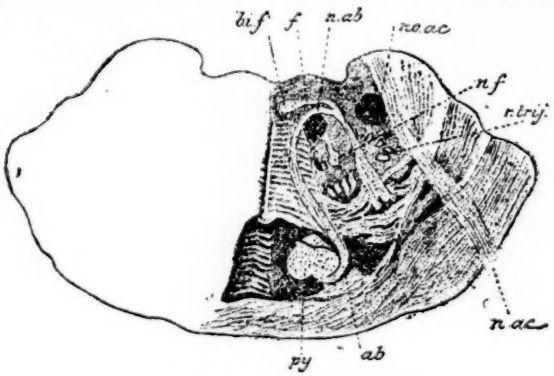

FIG. 1.—Section of the Pons Varolii of Man.

py. Pyramids. *ab.* Abducentes. *n. ac.* Anterior root of the auditory nerve. *r. trij.* Ascending root of the trigeminus. *n. f.* Nucleus of the facial nerve. *no.ac.* Nucleus of the auditory nerve. *n.ab.* Nucleus of the abducentes. *bf.* Intermediate fasciculus of the facial nerve. *f.* facial nerve.

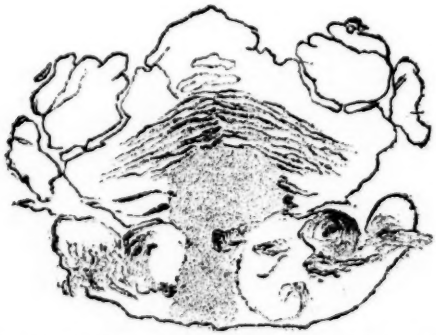

FIG. 2.—Section of the Pons Varolii and Cerebellum with patch of Softening. Horse.

side of the diseased centre, and a hemiplegia of the limbs on the opposite side. Sometimes there is remarked, in addition, a *hemianesthesia* which usually remains limited to the face in the vicinity of the trigeminus of the side opposite to that on which the limbs are paralysed. Among the

symptoms of suppression which may serve to complete the symptomatic list in cases of lesion in any part of the pons Varolii, may be mentioned paralysis of the *abducentes*, the *facial*, and the *hypoglossal*, according to the extent of the lesions (see Fig. 1).

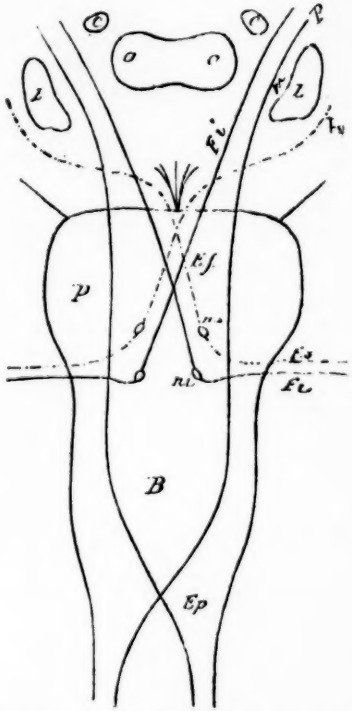

FIG. 3.—*c*. Caudate nucleus. *o*. Optic thalamus. *m*. Internal capsule. *L*. Lenticular nucleus. *Fi*. Inferior facial nerve. *Fs*. Superior facial nerve. *Ef*. Intercrossing of the facial nerve. *ns*. Superior nucleus of the facial and abducentes nerves. *ni*. Inferior nucleus of the facial and masseter nerves. *Ep*. Intercrossing of the pyramids.

It need scarcely be added that very different kinds of lesions may give rise to an alternate hemiplegia, among others hæmorrhagic or *ramollissement* foci, an abscess or tumour, a patch of sclerosis, or even a parasite which has invaded the medullary portion of the pons Varolii.*

* Bruckmüller. Œsterr. Vierteljahresschrift, 1855. Dieckerhoff. Adams' Wochenschrift, 1888.

The alternate character results from the intercrossing the facial nerve undergoes in the pons Varolii, while that of the pyramids only takes place in the medulla oblongata (see Fig. 3). This is why a unilateral lesion of the *peduncular* portion of the pons Varolii produces a simple hemiplegia, in which the paralysis of the face and limbs is on the same side. In both instances, however, the facial paralysis is complete—that is, it extends to all the branches, even those of the ear and eye; this is not the case with hemiplegias resulting from a lesion seated more forward, for example, in the *internal capsule*.

The cerebral fibres of the facial nerve arrive at the nucleus by a distinct course; those of the inferior nucleus come from the cortex, then reach the internal capsule, where they regain the peduncular fibres (Fig. 3). This fact explains why, in common hemiplegia, there is a cross paralysis of the inferior facial nerve *alone*, and at the same time there is cross paralysis of the limbs. The cerebral fibres of the superior facial nerve probably pass by another course than the internal capsule.

Among the clinical facts which we have enumerated, we may consider as alternate hemiplegias—besides the two cases that came under our personal observation—the first case extracted from the Reports of the German Military Veterinary Surgeons,* and that related by Boelmann. The other instances belong for the most part to the common hemiplegias.

(To be continued.)

LYMPHANGITIS.†

BY H. HEWITSON, M.R.C.V.S., CARLISLE.

THIS malady is one which goes under various names, but is technically known as "Lymphangitis." In Scotland it is known as a "Weed;" in England it is commonly called a "Shot of Grease," "Monday morning disease," and several other names. It is a disease which usually affects common under-bred cast horses, whereas amongst the lighter bred animals it is very seldom seen.

Nature.—It is a diseased condition of the lymphatics of the whole body, which becomes most apparent in the glands and vessels of the near hind limb; but why it should affect this limb more than any other is yet unknown. It is sometimes seen affecting one or both fore limbs, but in my

* In the description of that case, for "the *left eye* was diseased," read the "*right eye.*"
† Read before the Edinburgh Veterinary Medical Society.

experience, it has most frequently been in the right (off). The fore limbs are very rarely affected as compared with the hind limbs.

Process in Health.—The arteries carry nutritive material to all parts of the body, and it is the duty of the lymphatics to assist greatly in removing the waste products from the system, and also in taking up the excess of nutritive material which are not converted into the tissues of the body, which, when in excess, cause an over-stimulating effect on the glands; this runs on to inflammation. As in blood vessels, the lymphatics occupy both a superficial and a deep position in the animal body, and in health cannot be detected by the naked eye

Predisposing Cause and Pathology.—The chief predisposing cause is old age, although the disease is sometimes seen in young animals also; the breeding of the animal has something to do with it, as already stated.

Exciting Cause.—When horses are kept in the stable, and have not sufficient exercise, but receive the same supply of nutritive food as when they are at work, this is the time the disease is most prevalent; because there is a very great amount of nutritive material being absorbed, and very little waste going on the body when the animals are at rest. Then the lymphatics are called upon to perform more than their function; they become irritated, engorged, and the process of inflammation sets in. When the lymphatics are inflamed and swollen, they can easily be seen and felt projecting above the level of the skin. When they are in this condition they are extremely painful, and the animal evinces symptoms of great pain if the affected part be touched.

It is also believed that animals standing in draughty places, or that throwing cold water on them when in a heated condition, tends to bring on this disease; also that heavy blows or severe scratches about the legs will occasion it; but the chief cause lies in the neglect in feeding, working, and exercising the animal.

Inflammation of the lymphatics, unless when excited by specific poisons, seldom runs on to the formation of pus. Occasionally, however, the lymphatic glands, more particularly the inguinal, suppurate, and discharge the contained pus.

Suppuration of the glands may be expected when lymphangitis continues longer than usual, and when the swelling extends along the abdomen, sheath, or mammary glands. As soon as it can be ascertained that pus is formed, the parts must be freely laid open, a good depending orifice

being essential; for the pus is apt to burrow into the surrounding fascia and areolar tissue. In a case of this kind where the glands do suppurate, treat with antiseptic dressings.

Anatomical Characters.—It is very rarely that we have death resulting from an attack of lymphangitis, the majority of the sufferers generally recovering; but at the same time they are very liable to subsequent attacks of this malady. The most prominent feature is the swelling of the limb, which, if it be the hind limb, is well marked in the inguinal region; if in the fore limb, in the bronchial region. I have never had occasion to make a *post-mortem* examination of a case of this kind, but would expect to find, when the skin is incised, that it is thicker than natural, and the subcutaneous connective tissue will be charged with a yellow-coloured lymph, while the fibrous tissue of the leg will be much thickened and very tough, and the lymphatic glands enlarged and more fibrous than in health.

Symptoms.—These are of two kinds, *local* and *general.* The animal may appear perfectly well at night and in the morning it may present the symptoms of this disease.

Local Symptoms.—Sometimes when a horse-keeper enters the stable in a morning he sees nothing about the horse to alarm him until he attempts to move or turn the animal in the stall, when all at once it evinces pain in one of the hind limbs.

General Symptoms.—The first thing noticed is a shivering fit, hence the name applied to the disease, "*Shake*;" and as a rule the severity of the attack is denoted by the intensity and duration of the rigors (this stage is seldom seen by the veterinary surgeon). This period is followed by a hot stage or fever, with a quick and full pulse, which has a cord-like feeling beneath the finger; the respirations in some cases are very little altered, whilst in others it becomes hurried and short; sweats bedew the body; the visible mucous membranes are injected; the temperature is elevated two or three degrees, or perhaps more; the bowels are constipated, and the urine is usually high-coloured and has an abnormally high specific gravity. In diagnosing this disease the practitioner must be careful, as there are other diseases with which it might be confounded. For example, in Purpura there is swelling of the limbs, with stiffness and elevation of temperature; but by making a careful examination and eliciting the history of the case one can easily tell whether it is a case of lymphangitis that is to be dealt with or not. In Purpura,

also, you have the swelling along the abdominal region, and as a general rule there is swelling in more than one limb; but the swelling commences at the foot, extends upwards, and terminates abruptly, just as if a piece of cord had been tied round the part; whereas in Lymphangitis the swelling commences in the inguinal or brachial region, and gradually subsides towards the foot. In Purpura also there is swelling of the head and neck, and the petechial spots on the Schneiderian mucous membrane are very diagnostic indications of the disease. Again, Lymphangitis may be mistaken for Farcy; but in the former the lesions are chiefly confined to the glands, whilst in the latter the vessels are the chief seat of disease, and along their course are observed ulcerations which project and are termed "farcy buds." Lymphangitis may be confounded with Scarlatina, but in the latter there are blood spots on the Schneiderian mucous membrane, which differ from those of Purpura in that they are smaller and lighter in colour. Principal Williams says that in some instances Lymphangitis is preceded by symptoms of intestinal irritation, such as colicky pains and constipation of the bowels.

Treatment.—If the practitioner is called in when the animal presents the first symptoms, that is the cold or rigors stage, the animal, if possible, should be placed in a well-ventilated and comfortable loose box, out of all draughts, &c., clothed with a good thick blanket, and its legs rubbed and afterwards bandaged with either woollen or calico bandages. I always obtain the best results from giving half a dram to a dram of calomel mixed with the physic ball, which has a tendency, I think, to clear the lymphatic glands and cause the absorption of excess of nutritive material lying in the surrounding tissues. I have never seen fever draughts given in this disease; the fever medicine I give in these cases is one ounce doses of nitrate of potash dissolved in the animal's drinking-water twice a day, along with 10 mm. Tr. Aconite (Fleming's) three times a day. In the second or hot stage, bleeding is recommended by some veterinarians, but I think if the physic does its duty it is an uncalled-for operation, because by bleeding you are aggravating the disease, as in all cases of Lymphangitis the blood is highly fibrinous, and by bleeding you cause a great increase of fibrin which is already in excess; but if it should be resorted to, it is best to bleed from the jugular. Some practitioners bleed from the toe of the foot of the affected limb; this might be followed by unsatisfactory results, such as the entrance of putrefactive germs from the surrounding filth which is in immediate con-

tact with the open wound; and diseases, especially of the hind feet, are extremely liable to terminate fatally if they go so far as to set up irritative fever or blood poisoning. Bleeding from the coronary plexus is not quite so bad a practice as bleeding from the toe, but it also is uncalled for. Hot fomentation in the earlier stages, if properly applied, will be found to be most beneficial and successful. The best manner to carry out this form of treatment is to make a good stout rope of soft meadow, or old land hay, not seed-grass, and wind it round the leg from the foot to the thigh, then pour water in at the top and continue doing so for half-an-hour at a time, fomenting the affected limb in this way twice a day. Between each fomentation the hay rope should be removed and the leg properly dried, and if necessary apply a weak stimulating liniment. If the leg remains thick and the glands irritated after the medicine has operated, on the second day I always find it good practice to leave the meadow syme or rope on and apply cooling lotions keeping the leg and glands continually cool. First wet the rope with cold water, then pour in at the top of it several times a day near the inflamed gland, a little of the cooling lotion, such as the following:—

Tr. Arnica	2 ozs.
Ammon. Chlor.	„
Acid Acetic	„
Aqua (cold)	1½ pts.

The question now arises, should the animal be taken out and receive exercise when the limb is in this inflamed and thickened condition, or should it be kept at rest. Principal Williams says if the animal be walked out the swelling will subside for a little while, but it will again return after the animal has rested for a few hours, and in some cases, if the exercise is continued, it has not the desired effect, and the leg remains abnormally thick. Others say exercise must be given to avoid this chronic state. As regards my own experience, the animal that has been allowed to rest until the inflammation subsided, has been the one which showed no after traces of the disease. In regard to the feeding of the animal when in this condition, this is a matter of great importance; care should be taken to avoid all rich stimulating foods when the limb is inflamed and swollen; the diet ought to be restricted and cooling, for the reason that nutritious food is a direct stimulant to the lymphatics. If grass can be obtained give it in moderation; if not, then bran mashes and a little hay, &c., will do very well. When the

swelling has almost left the limb and it is neither hot nor painful to the touch, the application of a firm bandage to promote absorption and walking exercise will do a deal of good, and when you are satisfied the animal is out of all danger then it can go back to its ordinary work. I have mentioned purpura, farcy, and scarlatina as diseases for which lymphangitis might be mistaken, but I have known it when in the off fore limb being mistaken for an injury. The veterinary surgeon in attendance, although an old practitioner, had never seen a case in the off fore limb; however, he had it fomented twice a day, rubbed on a strong linament to bring the swelling, he said, "to a head." Having got it to "a head," he lanced it with his castrating knife, and dressed the opening daily with "fester oil," which consisted of ol. lini, turpentine, and sulphuric acid. About ten days after he had opened it, my brother was asked to see the animal, and on his arrival he found it suffering from open elbow joint, which he informed the owner was too far advanced to expect a cure. The owner told him that his "Vet." said it was running a nice healthy matter, and would soon be all right, but he (the owner) could see himself the animal becoming worse every day. However, the horse, being an old favourite, was tried on for a week, and appearing to get no better, was consequently destroyed.

Chronic Thick Leg.—This condition of the leg is of a much more serious character than that of lymphangitis, because it is a permanent thickening. As a general rule, it is the result of frequent attacks of lymphangitis, or is due, as I mentioned before, to exercising the animal when the leg is in an inflamed condition; then the exudate assumes a fibrous form and becomes organised. Many kinds of treatment have been recommended for this condition of the leg, but none seemed to have the desired effect or succeeded in making a cure. Some have setoned, fired, and blistered; others say they have had good results from purgatives, but, from what I can learn, the most successful results have been obtained from the administration of iodine salts, and an external application of the same; though, if you do fail to cure, the animal may be perfectly useful for a few years.

Editorial.

SLAUGHTERING ANIMALS FOR HUMAN FOOD.

THE question of cruelty in killing animals destined for the sustenance of mankind has often been raised and warmly argued, and perhaps the discussions have been in some respects productive of good, and have resulted in the adoption of more humane methods of slaughter in some countries, so far at least as one or two of the food-furnishing species is concerned. But, as a rule, slaughtering nearly always entails pain unless unconsciousness is immediately produced by such serious damage to the cerebrum as will abolish general sensibility. The smaller animals generally suffer pain, as they are usually sacrificed by effusion of blood, and the time required before insensibility ensues in them depends upon the rapidity of the effusion, but in any case it is not immediate. The pain attendant on the killing of wild animals whose flesh is consumed as food, must often be intense and protracted, and what suffering must fish endure which have to perish by slow asphyxia when taken out of the water? And what about the creatures which are maimed and wounded by sportsmen and manage to escape capture? In fact, pain is so much mixed up with flesh production, that the hypersensitive mind gladly avoids considering it, when possible, and certainly does not go in the direction where slaughtering is going on.

Yet all humane persons are agreed that so long as living creatures must be killed for food, they should be deprived of life as quickly and with as little suffering as may be possible. The methods of slaughter are many and varied, differing not only in different countries, but also according to the species of animal. Cattle are usually killed by the pole-axe, pithing, or effusion of blood, while calves, sheep, pigs and goats are deprived of life by the latter only.

There can be no doubt that, when expertly performed, pole-axing and pithing most promptly induce a painless death; but when the performer is not expert, then much agony may be produced before unconsciousness occurs. We have at times witnessed most sickening scenes when an unskilful slaughterman was plying the pole-axe, and have wished that so much skill and dexterity were not demanded in the use of this weapon, or that measures could be devised by which none but the most competent

men would be allowed to kill. The initial wound and the rapid effusion of blood when a knife is employed, as in the slaughter of calves, sheep, pigs, etc., cause pain no doubt, but this should be very brief if large blood-vessels are divided or the heart is incised; and though struggling may continue for some few minutes, this is no evidence that sensation may not have been abolished very soon after the stab or cut was inflicted. True, unconsciousness might be instantaneously brought about by a sufficiently powerful blow on the skull of these animals, but we fear it would be difficult to induce butchers to adopt this preliminary measure to blood-letting. The customs of the butchering trade, and the preparing the meat for market according to the fashion of the country, are grave obstacles to the introduction of new and possibly more humane methods of slaughter. At any rate attempts to bring into use in this country a more sure and certain mode of killing cattle than by the pole-axe have not been successful. All that humane people can do in the matter is to insist upon animals being killed as promptly as possible, and with as little suffering as may be compatible with the infliction of death. Needless suffering is cruelty, and this should be suppressed.

In recent times the Jewish mode of slaughter by cutting the throat—and so dividing the large arteries and veins in the neck, has attracted a good deal of attention, and attempts have been made to show that it is cruel. The recent political movement against the Jews in Russia, Germany, and other countries, has no doubt had a considerable share in this agitation; but it had been the subject of investigation in this country a considerable number of years ago, and the inquiry then instituted did not afford any reasonable grounds for regarding it as cruel, or as in any way more objectionable than the ordinary method of killing sheep or pigs. It might be considered a religious rite, and certainly every precaution seems to be adopted to ensure death as speedily as rapid bleeding and suffocation can do. The "Schauchet," or Jewish butcher, is a well-trained person, who uses a knife keen as a razor, and with a sweep of this he cuts the throat of the animal destined for Jewish food; the gush of blood that follows and rushes down the trachea into the lungs soon causes insensibility and unconsciousness, more quickly, in fact, than is generally the case in our pig and sheep killing. The Jews are not a cruel people in their treatment of animals, and we are certain that cruelty in slaughtering those from which they derive their food, they would not tolerate. We

have only to peruse the Mosaic laws and ordinances to be convinced of this; for humanity to the lower creatures is a part of the Jewish religion, and our sentiments of humanity are based on Jewish teaching.

THE NATIVE TREATMENT OF CATTLE DISEASES IN INDIA.

TRANSLATED FROM THE TAMIL BY VETERINARY-CAPTAIN J. MILLS, PRINCIPAL, BOMBAY VETERINARY COLLEGE.

HAVING had facilities for many years, during my various tours while veterinary-surgeon to the Government of Madras, for collecting Indian veterinary literature, I give to those interested in the subject a translation from the Tamil language on the treatment of cattle diseases.

The original work, which I have happily secured, is written, or rather scratched or punctured, with a sharp instrument, on the leaf of the Palmyra (*Borassus flabelliformis*). The author is said to be a Rishi.* If such be the case, it is evidence to show that the veterinary art was practised, although in rather an empirical and, in some instances, cruel manner, by the Hindus at a very remote era. It will be observed, too, from a perusal of the work, that their knowledge of the use of drugs, especially those derived from the vegetable kingdom, was by no means inconsiderable. Within its brief pages will be found the names of no less than forty-eight different plants. Little trust has, however, evidently been placed in the curative value of minerals, for only three of this class are employed. The other agents are the human skull, quails' feathers, urine, blood-suckers, butter-milk, the fæces of the cow and sheep, &c., many of which are typical of the wily empiric.

Nothing that will advance our present knowledge can, as far as I am aware, be gathered from the translation, nor have I forwarded it for publication with this view, but simply to show the fallacies which exist, and the cruelties inflicted, under the native methods of treatment, in the hope that, with the advancement of veterinary education, they may gradually wear away and give place to a system which is rational and humane.

To enable the plants named in the work to be recognised, I have given the botanical synonym opposite each.

The translation from the original was carried out by a well-educated Tamilian, C. Viswanath Iyer, a cattle disease inspector in the Madras Presidency.

TREATMENT OF CATTLE DISEASES.

Translated from the Tamil.

DIVINE HONOURS.

May the God Vishnu† prosper well,
May my instructor live long;
I invoke my instructor's assistance.

PRAYER.

My sufferings, my sinful actions, the troubles that I shall have to undergo as a mortal being, the distresses that cannot be removed from me, all these will disappear, if I worship the god Ganapathi‡ who resides in the tower of the temple at the Mount of Aroonachalam.§

* A Hindu sage.

† The second Hindoo divinity whose function is to protect or preserve.

‡ Son of Máheswárá or Sivá who is the third divinity. He is the second deity presiding over learning. To him are ascribed the powers of giving success or otherwise in any undertaking.

§ Name of a mountain in the South Arcot District in the Madras Presidency.

Four deadly forms of disease.

Mannadappan (malignant sort throat).
Pinnadappan (splenic apoplexy).
Tharian (malignant catarrh).
Kolli (a form of anthrax in which the jaws are affected).

Treatment, common, for all the four forms.

Give a measure of the juice of the plant called Adootunda palai (*Aristolochia indica*), to the animal suffering from any of the above-mentioned four forms. The juice should be obtained by maceration of the whole plant, roots, branches, &c.

Special treatment for each of them.

First.—Mannadappan (Malignant Sore Throat).

Symptoms.

The throat will be choked; the animal will make a peculiar grunting sound; the mouth will be kept open; saliva will be flowing from the mouth, and water from the eyes and nose.

Treatment.

Melahoo (*Piper nigrum*).
Omum (*Ptychotis ajowan*).
Poondoo (*Allium sativum*).
Vasamboo (*Acorus calamus*).
Sitharathai (*Alpinia chinensis*).
Tippili (*Chavica roxburghii*).

Take one-sixth pollem* weight of each of the above drugs, powder well, mix with the juice of Kandangatri (*Solanum jacquini*), and give as a drench.

Nassium (medicine per nostrils), take—
Melahoo (*Piper nigrum*), 20 in number.
Poondoo (*Allium sativum*), 1 in number.
Ooppoo (*Common salt*), one-eighth pollem.*
Moollee (*Premna integrifolia*), one fruit.

Grind well with urine, hold the pulp in a thin cloth, and allow drops of the juice to fall into the nostrils, 6 to 8 drops in each nostril.

Second.—Pinnadappan (Splenic Apoplexy).

Symptoms.

The chest will be seen as if there were some pressure from inside; the animal will cough with great pain; breathing will be very difficult; the animal will not pass fæces, and urine will be passed little by little.

Treatment.

Sitharathai (*Alpinia chinensis*).
Melahoo (*Piper nigrum*).
Tippili (*Chavica roxburghii*).
Vasamboo (*Acorus calamus*).
Poondoo (*Allium sativum*).
Induppoo (*Rock salt.*)

Take half a pollem of each of the above drugs, grind well and make into balls with the juice of the Kandangatri (*Solanum jacquini*). Give these balls in the juice of the leaves of the following plants, one in the morning and one in the evening, and continue for three days.

* A pollem is equivalent to 9 drachms.

Toolasi elai (*Ocimum sanctum*).
Manatackali elai (*Solanum insertum*).
Murunga elai (*Moringa pterygosperma*).

If the above methods of treatment fail to have effect, try the following :—

Take—Marukaria (*Gardenia dumitorum*) fruit of Adootandapalai (*Aristolochia indica*), leaves of Adapampattai (*Ipomœa pescaprœ*), bark of; macerate well the above three drugs in warm water, and give about half a measure of the infusion; and when the fore-leg is swollen, apply the actual cautery (firing-iron). Internally give—

Coliavarai (*Dolichos gladiatus*).
Omum (*Ptychotis ajowan*).

Third.—Tharian (Malignant Catarrh).

Symptoms.

Breathing will be quick; the animal will pass soft dung, water will be flowing from the eyes and nose.

Treatment.

Melahoo (*Piper nigrum*).
Omum (*Ptychotis ajowan*).
Poondoo (*Allium sativum*).
Vasam boo (*Acorus calamus*)

Take about one-sixth of a pollem of each of the above drugs, pound well and give in gingelly oil for three days.

Fourth.—Kolli (a form of Anthrax in which the jaws are affected).

Treatment.

Tie a bundle of straw, light it up and with it burn the jaw of the animal. Internally give the following medicine :—

Bring a blood-sucker and remove its head. After all the blood has passed out of the body, boil it well with varagoo rice (*Panicum miliaceum*), squeeze well by the hand and give a piece about the size of a wood-apple. Keep the animal in a shed, well covered.

Vackey (*Rinderpest*).

Karai elai (*Canthium parviflorum*), leaves of.
Sooray elai (*Zizyphusg labratai*), do.
Marudam elai (*Myrica sapida*), do.
Ahattipoo (*Agati grandiflora*), flowers of.
Seeragham (*Cuminum cyminum*).
Melahoo (*Piper nigrum*).

Take a certain quantity of each of the above six drugs and grind them well.

Take a piece about the size of a lime, mix in the following substances, and give internally :—

2 measures of buttermilk.
2 measures of the water of tender cocoanut.
A small quantity of the juice of cocoanut bark.
A small quantity of rice well roasted and ground.

Or we may give the medicine so prepared from the six drugs in the following mixture :—

1 measure of the juice of plaintain flower.
2 measures of the water of tender cocoanut.
$\frac{1}{8}$ measure of the juice of cocoanut bark.
2 measures of butter-milk.

Especially when the animal passes dung mixed with blood, give the following medicine:—

Pound well the leaves and bark of Marudam (*Myrica sapida*), mix four measures of water, evaporate it over a fire down to two measures and give.

In addition to the above, grind the leaves of Vidathari (*Mimosa cineria*), mix with rice flour and give.

Padoovan (any inflammation attended with swelling).

Treatment.

Pound well the whole plant called Nanjoomurican poondoo (*Tylophora asthmatica*), and give the animal daily, for two days, a piece about the size of a cocoanut.

Then apply to the swollen part the undermentioned medicine:—

Avoori elai (*Indigofera tinctoria*), leaves of.
Oomathai elai (*Datura stramonium*), do.
Coliavarai elai (*Dolichos gladiatus*), do.
Kottaikeranthi elai (*Sphæranthus hirtus*), leaves of.

Take equal quantities of each of the above four drugs, macerate well and extract the juice; to this add a little Vasamboo (*Acorus calumus*). Heat the whole for some time and apply to the affected part.

Alaripadoovan (inflammation attended with a burning sensation).

Treatment.

Bring the leaves of the plant called Mavilingum (*Crataeva nurvala*) macerate well in warm water and give a measure of the infusion. Keep the animal in a shed, and towards evening wash it well with warm water.

Gunni novoo (Tympanitis).

Symptoms.

The abdomen will be swollen; there will be a spasm of the bowel; sometimes the back will be arched; the animal will not pass fæces, but will urinate.

Treatment.

Omum (*Ptychotis ajowan*).
Tippili (*Chavica roxburghii*).

Fry these a little over a fire, powder and give with ripe leaves of Yerbokay *Caloptris gigantea*).

Tie round the neck of the animal a string of Koonthumani kodi (*Abrus precatorius*). Apply ashes from head to tail, and fan with a murum (native winnow).

Vakuti novoo (Phrenitis).

Symptoms.

The animal will be turning round and round, and there will be spasm of all the muscles of the body.

Treatment.

Take the following drugs:—

Kuppamani elai (*Acalypha indica*), leaves of.
Valooparooti elai (*Dæmea extensa*), do.
Ven Nachie elai (*Vitex negundo*), do.

Extract about one measure of juice from the abovementioned drugs; to this add the following ingredients and give internally:—

Tippili (*Chavica roxburghii*).
Poondoo (*Allium sativum*).

External Application.

Perunday (*Vitis quadrangularis*).
Nochie (*Vitex negundo*).
Alingee (*Alangium decapetalum*).

Extract a measure of juice from the leaves of these plants; to this add cow-dung ash and sheep's dung, each as much as the size of a cocoanut, and also a little piece of Vasamboo (*Acorus calamus*). Boil the whole well, and apply all over the body for three days.

Nassium (medicine per nostril).
Tumba elai (*Leucas indica*).
Ooppoo (Salt, common).

Grind them well with urine, and let fall a few drops in each nostril.

Serumbal (Cold and cough).

Treatment.

Kozgikaram (Red sulphur).
Navacharam (*Sal ammoniac*).
Munnipalam (*Premna integrifolia*), fruit of.
Toolasi elai (*Ocimum sanctum*), leaves of.
Moongal elai (*Bambusa arundinaceæ*) leaves of.
Kodai eragoo (Quails' feathers).

Take one pollem of each of the first two drugs, ¼ pollem of the last one, and sufficient quantity of the remaining ones. Grind them well and give in hot water.

Nassium (medicine per nostril).
Munnipalam (*Premna integrifolia*), fruit of.
Melahoo (*Piper nigrum*).
Ooppoo (Salt, common).
Tumba elai (*Leucas indica*), leaves of.
Tulasi elai (*Ocimum sanctum*), do.

Take equal quantities of the above drugs, grind them a little with water, and let fall drops of the juice into the nostrils, by placing the pulp in a piece of thin cloth.

When the eyes of an animal are attacked with flies or injured by blows, &c., try the following three methods of treatment:—

1. Apply the milky juice of the plant called Kattoo amanakoo (*Jatropha curcas*) to the eye.

2. Take a little of Geeragam (*Cuminum cyminum*), and onion (*Allium cepa*), grind them a little in a mortar by adding human milk and let drops fall into the eye.

3. Take a few leaves of Lotus (*Nelumbium speciosum*), and a few of pepper. Grind them a little in a mortar with human milk and apply to the affected eye.

(To be continued.)

ANARCHIST BEES.

It would appear that there is a means of converting the industrious and well-behaved bee into a typical anarchist—idle, dissolute and destructive. The procedure adopted experimentally by Dr. Buchner is simple and easy. It consists in submitting working bees to a *regime* of alcoholised honey. The bees readily take to this pernicious alimentation, and under its influence they at first lose the working instinct which is so marked a feature in their character; then they forsake their hierarchism, which is not less powerful in

these creatures. They become anti-social and rebellious, and apparently without any scruple, abandon themselves to practices which imply everyone for itself; they become thieves and brigands.

This curious and truly suggestive experiment has been recently alluded to by the celebrated Professor Lombroso in the *Archives Italiennes de Psychiâtrie et d'Anthropologie Crimmelle*. The etiology of anarchism in alcoholism should furnish a hint to legislators.—*Journal de Médecine Veterinaire.*

PNEUMO-BACILLIN AS A DIAGNOSTIC AGENT IN GLANDERS.

SOME months ago we published an article by Professor Arloing, director of the Lyons Veterinary School, on his discovery of the *Pneumo-bacillus liquefacious bovis* as the active agent in developing contagious pleuro-pneumonia, his cultivation of this micro-organism, and his production of a pneumo-bacillin which, when inoculated, was a valuable test agent for that disease. In a communication to the French Société de Biologie on December 9th, he states that recently it has been shown that the product of certain other microbes than that of the bacillus of Koch may cause an active reaction in animals which are tuberculous, and he has been desirous of ascertaining if the pneumo-bacillin which he introduced, and the pyrogenic effect of which is so marked in the bovine species when affected with chronic pleuro-pneumonia, might not take the place of mallein in the diagnosis of glanders. To carry out this inquiry, he has made comparative trials with the two substances on eight horses affected with glanders, or suspected of being glandered; and he has found that the thermic reactions have been sensibly the same with injections of mallein and pneumo-bacillin, the elevation of temperature being much greater in the diseased than the suspected animals. Except in one case, in which glanders was verified by the autopsy, the thermic reaction progressed in an almost parallel manner after the employment of the two test agents in each animal. The result of his investigation shows that the pneumo-bacillin may, when desired, take the place of mallein.

TETANUS IN FOWLS.

DRS. COURMONT AND DOYEN, of Lyons, have recently succeeded in inoculating fowls with tetanus, employing cultures of Nicolaïer's bacillus. This is the first time these birds have been found susceptible to this disease. The experimenters were also successful in inoculating fowls against tetanus by means of small doses of the soluble products of the bacillus.

It may be mentioned that, while experimenting upon animals, Dr. Nicolaïer accidentally wounded himself in the left hand with the needle of a syringe which had been used in the inoculation of a fowl with a filtered culture. Four days later generalized tetanus appeared. Spasms at first manifested themselves at the point of inoculation, where they persisted long after other parts of the body had returned to their normal state. The incubation period of four days confirms the views of Drs. Courmont and Doyen, who hold that the toxine of tetanus is not in itself toxic, but that after introduction into the system it gives rise, by a sort of fermentation, to a strychnine-like toxine, to which the characteristic symptoms of tetanus are due.

TUBERCULOSIS IN SOUTH AMERICAN MEAT.

As probably more of the beef eaten in this country is imported from South America than is commonly supposed, some interest is attached to an article on the subject of Tuberculosis in Colombian Cattle, published in the September number of the *Revista Medica de Bogota* by Dr. Miguel Arango,

who says that, although it is quite true that a very large proportion—perhaps as many as 90 per cent.—of the cattle slaughtered in Bogota are found to have small tumours in the intestines, these are not, as has been supposed, of a tuberculous origin. These tumours vary in size from that of a hemp-seed to that of a grain of Indian corn. They lie in the submucous tissue, and consist of a white, fibrous envelope, which is firmly adherent to the surrounding tissues, containing in the case of the smaller tumours a white jelly, and in the larger ones a darker and firmer substance. In the smaller tumours the contents become transformed into fibrillæ under the action of ammonia while in the larger ones they are dissolved and their purulent character rendered evident by this reagent. Dr. Arango has sometimes made out crystals of a siliceous nature in the contents. He has found the tumours in all parts of the intestinal canal, even in the rectum. In no case has he found ulceration, whereas tuberculous affections of the intestine almost always undergo this change. Again, tuberculous disease of the intestine is most commonly secondary to pulmonary disease, but in the carcasses he has examined the lungs were comparatively rarely implicated, not nearly so often as the intestines; and when they were, the lesion was almost always due to a parasite, a fluke being frequently found in the pulmonary cavities. It is worthy of remark in this connection that in Bogota horses and donkeys are very subject to this parasitic affection of the lungs, but rarely suffer from phthisis. It has been remarked that whenever the lungs of the cattle are affected, the liver is invariably very much diseased, the latter organ being more often affected. Thus, in the year 1892, more than 16,000 carcasses were examined, the liver containing flukes in about one of every three carcasses, while the lungs were only affected in one in every thirty-four. The real nature of the intestinal tumours does not seem to have been satisfactorily ascertained, but Dr. Arango thinks that they are due either to some parasite or to a glandular cyst caused by the mechanical obstruction of the duct by particles of sand. It has been suggested that the fact of a large number of poor people in Bogota being phthisical is an argument in favour of tubercle existing in the meat; but Dr. Arango thinks that the miserable habitations, with an entire want of ventilation, and the wretched way in which these poor people live, are a sufficient explanation of the prevalence of phthisis among them. He does not, indeed, deny the existence of tubercle among the cattle, but he is convinced that it is far more rare than in European cattle, and that it is commonly introduced when these latter are imported. The conditions of cattle life, however, are far less favourable to the development of phthisis than those existing in Europe, where cowsheds—often dirty and ill-ventilated —are much in vogue instead of the absolute open-air life of the South American ranch.—*The Lancet.*

CONTAGIOUS DISEASES OF ANIMALS IN GREAT BRITAIN IN 1893.

THE returns are now complete for 1893 of the cases of contagious diseases of farm live-stock, horses, and dogs, as reported to and recorded by the Veterinary Branch of the Board of Agriculture. In the subjoined tables the figures for last year are given in conjunction with the corresponding figures of the three previous years. The figures for pleuro-pneumonia afford the strongest reasons for the hope that we are now within a reasonable distance of the total extinction of this insidious disease. In the case of swine fever the increase in numbers as compared with last year may, perhaps, be due rather to greater vigilance on the part of the officials than to any absolute extension of the malady; swine fever came within the field of operations of the Board of Agriculture on November 1st last. The figures for anthrax are decidedly unsatisfactory, and from its very nature there is less hope of pursuing this

disease to extermination than there is in the case of the other scheduled diseases. The figures throughout refer to Great Britain:—

Number of Cattle Slaughtered for Pleuro-pneumonia.

Year.	Diseased.	Having been in contact.	Suspected.
1893	30	1,157	86
1892	134	3,477	186
1891	788	9,461	232
1890	2,022	11,301	—

Number of Swine that Died of, or were Slaughtered for, Swine Fever.

Year.	Died.	Slaughtered as diseased or as exposed to infection.	Slaughtered as suspected.
1893	6,133	15,339	93
1892	5,663	12,394	—
1891	14,112	23,918	—
1890	12,785	21,863	—

Number of Cases of Cases of Anthrax and of Glanders.

Year.	Anthrax.		Glanders.	
	Fresh Outbreaks.	Animals Attacked.	Fresh Outbreaks.	Animals Attacked.
1893..	567	1,294	1,384	2,127
1892..	286	633	1,632	2,954
1891..	226	471	1,351	2,435
1890..	152	535	959	2,808

In the case of rabies the numbers of diseased animals that were killed or that died in 1893, 1892, 1891, and 1890 were respectively 93, 40, 81, and 134. Of foot-and-mouth disease there were two outbreaks, involving 30 animals in 1893, against 95 outbreaks, embracing 5,267 animals, in 1892. This disease was not recorded in the years 1891 and 1890.—*The Times.*

DRY MALLEIN.

MALLEIN prepared after the procedure adopted by Preusse, Gutzeit, Foth, the Paris Pasteur Institute, etc., has the serious inconvenience of readily becoming altered, and, consequently, not being constant in its results; while that prepared more particularly by means of *bouillons* is often invaded by fungi or other micro-organisms, to prevent which the fluid must be sterilised, and this is liable to render it impotent. In order to obviate these drawbacks, Foth, a Veterinary Surgeon in the Prussian Army, set himself the task of procuring a dry mallein, and at last succeeded in devising a procedure by which the material can be manufactured in a dry state, and which is also so simple that anyone who is only slightly acquainted with the methods employed in bacteriology may prepare it. This dry mallein can be kept

without any special precautions in a glass tube closed with a cork or a ground-glass stopper. Samples kept for a year and exposed to various temperatures, were found to be as active as fresh mallein in some experiments undertaken by Bayer and Schindelka at the Vienna Veterinary School.

This discovery, therefore, confers a great practical advantage, and, in all likelihood, before long this mallein will be sold in small tubes by pharmacists. —*Recueil de Méd. Vétérinaire.*

THE CUTEREBRA EMASCULATOR IN A DOG.

MR. FRENCH, Secretary to the Montreal Veterinary Medical Association, alludes (in the *Journal of Comparative Medicine and Veterinary Archives* for December) to an instance of the larva of a bot-fly being extracted from the scrotum of a dog. The insect was forwarded to Professor Fletcher, of the Ottawa Experimental Farm, who pronounced it to belong to the genus *Cuterebra*, individuals of which are known to infest squirrels, hares, and mice, but he had never heard of a dog being the host. The dog, in this instance, was apparently indifferent to the fact that the parasite was slowly emasculating him.

NATURAL AND ACQUIRED IMMUNITY FROM DISEASE.

BEHRING has a paper of extraordinary interest in the *Deutsche Medicinische Wochenschrift*, No. 48, on the Present Position of the Blood-serum Treatment. The discovery of specific poisons of bacterial origin has led to a search for specific remedies. The specific poison has been shown to exist by experiments relating to (*inter alia*) tetanus, diphtheria, glanders, and cholera. Formerly the object of treatment was to kill the parasite; we now use the parasiticide remedies for preventing the multiplication of micro-organisms in excreta, clothes, or dwellings, but we do not yet know how to use them with any effect upon the living organisms. The micro-organisms of disease are harmless in the system if the system be protected. Thus the convalescent from diphtheria have living and virulent diphtheritic bacilli in their mouths, often for weeks, but are unaffected by them. Persons, again, who have had or have been exposed to cholera may pass cholera bacilli in a state of activity and virulence by the bowel, and yet to all appearance be quite well. Such people are, of course, a source of danger to others. There is also a natural insusceptibility. White mice, we know, are not affected by diphtheria, nor do fowls contract tetanus. This natural immunity cannot be communicated by transfusion. There is, again, an acquired immunity, of which the effects of vaccination afford a familiar example; and possibly we may include here the immunity which some individuals eventually reach against alcohol, tobacco, and morphine. Such acquired immunity may, according to Behring, develop quickly or slowly. Immunity which is acquired quickly is connected with an alteration of the blood. Under the influence of systematic and gradually increasing doses of the tetanus poison the fluid constituents of the blood (serum) acquire the property of making the poison harmless; and if this antitoxic serum is injected into another animal, the latter also becomes for a time immune. Tetanus poison has three different effects on a susceptible individual: (1) it causes tetanus to a greater or less degree, with (2) development of antitoxine in the blood, and (3) a diminished susceptibility of the living tissues towards the poison. In animals treated with tetanus poison the first result is the appearance of antitoxine in the blood. As the treatment is continued each increased dose of poison causes a further reaction, and each reaction up to a certain point is followed by an increase in the amount of antitoxine. The animal has now acquired more or less complete immunity,

and its blood contains antitoxine; but there comes a time when, in consequence of the impossibility of administering sufficiently virulent cultures either in quality or quantity, no further reaction can be obtained. No more antitoxine being now produced, that already developed gradually disappears from the blood, and the serum, if now transfused into another animal, no longer causes immunity. But the immunity of the original subject of experiment abides and increases. It is clear that in this stage the antitoxic quality of the blood (which has disappeared) cannot explain the continued immunity. Behring considers that this condition exhibits the formerly susceptible living tissues as insusceptible, and holds that this acquired immunity is comparable to natural immunity, and of the same nature. The immunity resulting from immediate assimilation of antitoxine he describes as "direct," while that following repeated reactions to doses of poison he calls "indirect." Animals that have been made directly immune by the injection of antitoxic serum as soon as the antitoxine is excreted are as susceptible as ever, and hence such an immunity cannot be transmitted by the semen, for instance. It is transitory; but the immunity of the living tissues is, if natural, permanent. The question—which Behring considers that time will prove—is whether the acquired immunity of living tissues is hereditary and permanent.

In the *Berliner Medicinische Wochenschrift* (Nos. 49, 50, 51, 52), it is stated that in testing the duration of the immunity afforded by serum from various sources it was found that in rabbits treated with horse-serum the immunity was lost in sixteen days, and that there was rather strong local reaction. In rabbits treated with dog-serum the immunity vanished in fifteen days, and again there was considerable local reaction. In rabbits treated with rabbit-serum there was but slight local reaction, and the immunity was prolonged to twenty-one days. In the experiments the various kinds of serum injected were of the same immunising power, or were carefully made so by using proportional doses. From these results the obvious conclusions have been drawn that the immunity which the serum will afford is different in serums of different origin, and that in general an animal obtains the longest immunity if injected with serum from an animal of the same natural order. A further series of experiments went to show that the dose of serum necessary to save an animal which had been infected twenty-four hours previously with the minimum fatal dose is from 1000 to 2000 times greater than the dose of serum which will protect an animal when administered twenty-four hours before injection of the poison. It was also found that within definite limits an increase in the dose of the serum had the effect of shortening the duration of the treatment.—*Lancet.*

ATTENUATION OF THE VIRUS OF CATTLE PLAGUE.

For very many years attempts have been made to restrain the ravages of cattle plague by protective inoculation with the virus of that disease; indeed, such attempts date from the middle of the last century, when the disease overran Europe and continued for a long time. But it has always been found that there were grave objections to such a procedure; and, in fact, when this inoculation did not cause as serious an outbreak as the naturally acquired malady, it at least maintained the existence of the scourge. Since the introduction of attenuation of viruses by M. Pasteur, attention has been directed to the attenuation of the virus of cattle plague, and for some time the Veterinary Professor Semmer of St. Petersburg, in conjunction with his assistant, Tartakovsky, has been working in this direction. Their experiments have shown that within four days after inoculation with the non-attenuated virus of the plague it exists in the blood, the urine, the nasal mucus, and the milk of the inoculated animal. At a more advanced period

of the disease a variety of micro-organisms are observed in these fluids, but the investigators could not decide whether any of them was the active agent in the production of the disorder. They were, however, able to arrive at the important conclusion that the virus becomes attenuated in passing through the bodies of the smaller animals, such as the guinea pig, as well as on being submitted to high and low temperatures. When this attenuated virus is inoculated into healthy animals they are no longer susceptible of infection, and the blood serum of such immunised creatures when injected into non-protected cattle in localities where cattle plague prevails diminishes their receptivity for infection. These promising investigations are being continued, but already enough has been accomplished to allow the hope to be indulged that India will soon be benefited by them.

STAPHYLOCOCCUS AUREUS IN FISHES.

Dr. Charrin reported, at a recent meeting of the Biological Society of Paris, the result of the study of an epidemic among fishes in the Rhone. A large number of dead and dying fishes belonging to the gudgeon species were found lying in the Rhone, and on examination the anterior third of the body was found affected by œdematous infiltration. A small quantity of fluid was found in the abdominal cavity, and the muscles were in a state of tonic spasm. Cultures made on gelatin and broth exhibited the staphylococcus aureus. Healthy fishes inoculated with the culture became sick in the same manner. This observation is very interesting, as showing that the pus-producing microbe found is capable of developing under widely different conditions, and also suggests the means of septic infection, which seems to have escaped attention heretofore.

THE MORPHOLOGICAL VALUE OF HORNS ON THE HORSE.

At a recent meeting of the Paris Société de Biologie, M. J. Blanc alluded to the fact that for a long time small horns had been observed on horses; these were situated on the frontal bone, above and within the orbit. They formed a pair of bony or cartilaginous protuberances, projecting one or two centimetres, and covered by the normal skin or a small horny sheath. The investigations of M. Blanc lead him to believe that, from their position, which corresponds very exactly to the position of the horns of ruminants of the ovine type, and their mode of development, "the axis of the horse's horns is derived from the primordial cranium," being formed by the summit of the alæ of the anterior sphenoid bone, which are surrounded by the frontal bone from the period of its formation.

The similarity in position existing between the horns of the horse and those of ruminant ovines, affords a presumption that there is perhaps a common origin of these appendages; and it may be asked if these horns of ruminants, which heretofore have been considered as dependencies of the frontal bone, have not their point of departure from the wings of the anterior sphenoid bone, as is the case with those of the horse.

MICROBIC PSEUDO-TUBERCULOSIS IN THE SHEEP.

In 1891, Preisz and Guinard studied a pseudo-tuberculosis affecting the kidneys of a sheep, and which they attributed to a very small bacillus scarcely more than 3μ long. This micro-organism they isolated and cultivated, and inoculated it into rabbits and guinea-pigs, producing special lesions in these creatures, analogous to those of tuberculosis. This was the first instance of bacillary pseudo-tuberculosis studied in the sheep.

Quite recently Guinard and Morey have resumed the investigation of this affection, the opportunity having offered of doing so by their having procured the carcase of a sheep which had numerous tubercles, and the results they laid before the Paris Society of Biology in November last. The tubercles were observed in the lungs, where they had the appearance of true tubercles; in the liver, where they were seen only on the surface of the organ; and on the peritoneum, the stomach and intestines. The bronchial and prethoracic lymphatic glands were hypertrophied and indurated, and contained a white caseous substance. The right interior lobe of the lung had a cavity the dimensions of a nut, and this was full of a thick, cheesy, greyish matter. Though a most careful microscopical examination was made of these lesions, no trace could be found of Koch's tubercle bacillus, but instead there was observed a special microbe having the closest resemblance to that described by Preisz and Guinard. Matter from the tubercles was inoculated into guinea-pigs and rabbits, with the result that lesions were developed in these creatures similar to the original lesions from which they were derived, and the same microbe was found in their interior. The duration of the malady oscillated between four and six weeks.

The microbe has been cultivated in different artificial media, and Guinard and Morey have studied its characters and remarkable polymorphism.

ACTINOMYCOSIS AFFECTING THE TONGUE OF A HORSE.

In the *Berliner Thierärzthiche Wochenschrift* Truelsen describes what is a somewhat rare occurrence in the horse—actinomycosis of the tongue, though this is perhaps its most frequent form in cattle. This instance of actinomycosic glossitis occurred in a horse aged ten years, which for a long time masticated with difficulty, and had profuse salivation. On inspection of the mouth, the tongue was found inflamed, its point being greatly enlarged; the organ was very painful on manipulation, and compact, hard, and inflexible, while the veins along its sides were much distended. A short distance from the point there projected from the surface five nodules about the size of a haricot bean, which were surrounded by a red areola. Two of these tumours coalesced to form one, the summit of which was ulcerated, and on being pressed a cheesy matter exuded from this part. In this caseous fluid were noticed yellowish granules, which, on microscopical examination, were discovered to be constituted by tufts of the actinomyces, with the mycelia and claviform conidia.

Truelsen treated the case by making incisions into the tumours and applying to them daily tincture of iodine, while fifteen grammes of potassium iodide were also administered internally every day. At the end of twenty days the tumours had disappeared, there was no salivation, and mastication was easily accomplished.

ACCIDENTAL INOCULATION OF A VETERINARY SURGEON WITH ANTHRAX VIRUS.

The greater prevalence of anthrax among animals than has been known for many years has made it all the more incumbent among veterinary surgeons to adopt every precaution for their own personal safety, as accidental inoculation is easy and is always present. Such an accident happened recently to Mr. H. Redford, M.R.C.V.S., Winchester, who, in making the autopsy of a cow, omitted to wear protective gloves; subseqnently a painful swelling appeared on his arm, which compelled him to proceed to London with a view of consulting a specialist, when it was discovered that the disease was anthrax. Mr. Redford had to undergo an operation of a serious nature, but this, no doubt, saved his life, as he is now recovering from the effects of the

inoculation. Veterinary surgeons cannot be too careful to keep not only their hands and arms, but also their face and other exposed parts free from blood and soilings from animals which have died suddenly. There is even risk in getting the clothes splashed or soiled.

TESTIMONIAL TO PROFESSOR AXE.

A MOVEMENT has been inaugurated to present a suitable testimonial to Professor Axe on the occasion of his retirement from the Royal Veterinary College, where he for a quarter of a century laboured as a teacher, and is well known as one who has been loyal to the best interests of the profession, which he has served with distinction in many ways. Subscriptions are limited to members of the Royal College, are not to exceed two guineas, and may be forwarded to Mr. J. F. Simpson, F.R.C.V.S., J.P., Maidenhead, Berks, or to Mr. R. A. Powys, Royal Veterinary College, Camden Town, London.

Reviews.

DER MILZBRAND DER RATTEN. (ANTHRAX IN RATS.) BY DR. K. MULLER. Berlin: Fischer. 1893.)

THIS little brochure of eighty-two pages, deals more especially with anthrax in its relations to immunity, and the different actions of the anthrax virus on animals even of the same species. The author found in his experiments that dark-coloured rats have less receptivity for this poison than white rats, just as Algerian sheep resist its action so much more than European sheep. The investigations pursued by Dr. Kurt possess much interest; they led him to believe that the serum itself does not contain the substance or principle that gives immunity, but that this is produced by the living cells, though these are not leucocytes, which have no special function in this respect beyond other cells in the body.

THE DISEASES AND DISORDERS OF THE OX, WITH AN ACCOUNT OF THE DISEASES OF THE SHEEP. BY G. GRESSWELL, M.A., L.R.C.P., AND S.E., AND DR. A. GRESSWELL. SECOND EDITION. (London: W. H. Allen & Co., 1894.)

A second edition of this work having been demanded within five years of its first appearance is sufficient evidence that it has supplied a want. We spoke in favour of it when it was published in 1889, and we are still of opinion that it is a useful book for those for whom it was written. It is instructive and entertaining for the amateur, and will no doubt lead him to understand that animal diseases are many and varied, and need special skill to manage them successfully. Some of the woodcuts in the book could be improved.

TRATTATO DI OSTETRICA VETERINARIA. Per il GIORGIO FLEMING, Capo Chirurgo-Veterinario dell'Armata Inglese. Prima Traduzione Italiana Consentita dall'Autore. Per ill Dott. FREDERICO BOSCHETTI; Riveduta e Annotata dal Dott. ROBERTO BASSI. (Turin: Unione Tipografico-Editrice Torinese. 1893.)

(TREATISE ON VETERINARY OBSTETRICS. By GEORGE FLEMING, Principal Veterinary-Surgeon of the English Army. First Italian Translation made with the consent of the Author. By Dr. FREDERIC BOSCHETTI. Revised and Annotated by Dr. ROBERT BASSI.)

This well-known treatise on Veterinary Obstetrics—the only work of the kind in the English language—has been honoured by translation into Italian by one of the most talented and enthusiastic of younger Veterinarians of

Italy, Dr. Boschetti, assistant in general pathology and pathological anatomy at the Turin Veterinary School; the work being revised and annotated by Dr. Bassi, director of the same school, and professor of pathology, clinical surgery and obstetrics. The publication of this translation has been some time in progress, as it was issued in parts, twenty in number. But the task was not a light one, though it has been admirably executed, and adds another to the now numerous and noteworthy literary achievements of the translator; while Dr. Bassi's annotations add to the value of the treatise and render it more acceptable to Italian Veterinary Surgeons. It must be accepted as a compliment to the Veterinary profession in this country that one of its standard works should be deemed worthy of so much labour and expense by being translated into a foreign tongue and in such a creditable guise, for no pains have been spared to make it greatly superior to the English edition in paper, typography, and general finish. At the last meeting of the National Veterinary Association, one of the speakers, in airing his notions of the pathology of parturient apoplexy, referred to this English work as a translation of St. Cyr's "Manual." This was of course incorrect, and the speaker, we may charitably suppose, had not seen the French book, or he could not truthfully have made such a statement. At any rate the best evidence that it has no foundation in fact is to be found in the appearance of Dr. Boschetti's translation, as he and Dr. Bassi are too well versed in Continental literature to commit the blunder of making a translation from a translation, when they were well acquainted with the French language.

LIVE STOCK JOURNAL AND ALMANACK FOR 1894. (London: Vinton & Co.) The issue of this almanack for the current year, though rather different externally from its predecessors, contains as varied and useful information as any of them, the articles being well written and dealing with the principal domesticated animals included in the category of live stock. It is a marvellous shilling's worth.

Army Veterinary Department.

Gazette, January 16th.

Veterinary-Lieutenant J. Finlayson to be Veterinary-Captain.

ARTILLERY VOLUNTEERS (First Shropshire and Staffordshire).—J. W. Coe, gent., to be Veterinary-Lieutenant.

Obituary.

THE death has been reported of Mr. James Sandemann, M.R.C.V.S., Kirriemuir, Forfar, who graduated so long ago as 1834; also that of Mr. H. L. Tidey, M.R.C.V.S., Hampstead, London, who received his diploma so recently as 1892.

Many graduates of the Royal College of Veterinary Surgeons will hear with regret of the death of Mr. Richard Bentley, M.R.C.S., F.L.S., who was formerly Professor of Botany and Dean of the Medical Faculty of King's College, London, as well as Professor of Materia Medica and Botany, Pharmaceutical Society, and Examiner in Botany for the Royal College of Veterinary Surgeons in London from 1873 to 1882. His life was entirely devoted to the advancement of botanical science, and he was the author of numerous books and papers bearing upon it, and upon the applications of botanical knowledge in medicine and in the arts. His "Manual of Botany" is a standard work, and the "Medicinal Plants," published in conjunction with Dr. Trimen, is an almost monumental treatise on the subject; while one of the last of his works of this kind was the editing, jointly with Professors

Redwood and Attfield, of "The British Pharmacopœia" of 1885, which is still the official standard for all medicinal preparations which are recognised by the Medical Council. Mr. Bentley was a member of several learned Societies in this and other countries, and was greatly esteemed by his old pupils for his kindliness of disposition and for the thoroughness of his teaching; those members of the veterinary profession who were examined by him will testify to his tact and consideration when testing them as to their knowledge of botany. I had the pleasure of being his colleague in the examination hall for several years, sitting at the same table with him, and was always much impressed with the careful and thorough manner in which he carried out his responsible duties. Failing health and the pressure of other duties compelled him to retire from our Examining Board in 1882. He was 72 years of age when he died.—G. F.

Jurisprudence.

At the Lambeth Police Court, London, on the 21st December, before Mr. Biron, Q.C., John Langton, of No. 1, Sydenham Grove Mews, Lansdowne Hill, West Norwood, was summoned at the instance of the Royal College of Veterinary Surgeons for an infringement of the 17th section of the Veterinary Surgeons Act, 1881.

Mr. THATCHER, the College Solicitor, prosecuted, and stated that the defendant, who was an unqualified person, displayed on his premises the words, "J. Langton, Veterinary Shoeing Forge, Horses, Cattle and Dogs taken in and attended to." He cited the case of the Royal College of Veterinary Surgeons *v.* Robinson, and stated that it was not the ordinary practice of the College to ask for a very large penalty in cases of first offence, in which the words, "Veterinary Forge or Veterinary Shoeing Forge" were used, but he considered the use of the words, "Horses, Cattle and Dogs taken in and attended to," took this case beyond an ordinary one, and should be more severely punished.

Evidence having been given in support of the opening statement, the defendant urged that he was ignorant of the law, that the board had been put up by his father, and had been there for many years; that he did not conduct any veterinary practice himself, but always called in the assistance of a veterinary surgeon. He called Mr. Greening, M.R.C.V.S., of Brixton, as a witness, who stated that he had a practice round Norwood, and the defendant sent him any cases which he had, and that defendant got no profit out of them, so far as he was concerned.

Mr. THATCHER: Do you mean to guarantee that defendant does not do any veterinary practice on his own account?

Mr. GREENING: Certainly not.

Mr. BIRON to defendant: I do not think Mr. Greening's evidence carries your case any further. I shall, however, treat you as a shoeing smith, and fine you 20s. and costs, which I shall fix at 20s. also.

Parliamentary Intelligence.

HOUSE OF COMMONS, December 27th.

GLANDERS.

Mr. T. H. BOLTON asked the President of the Board of Agriculture whether he could give the House any further information as to the increase or decrease of glanders in the metropolis; and whether, if there had not been any

material decrease, he would make representations to the London County Council with a view to a reconsideration of their policy (with regard to compensation) in dealing with the disease.

Mr. GARDNER: I am happy to say that still further improvement has been shown in the number of horses reported to have been attacked with glanders, since I replied to the similar question addressed to me by the hon. baronet the member for Marylebone, on the 10th ult. The number of outbreaks reported and animals attacked during the past nine weeks have been 154 and 214 respectively, as compared with 194 and 394 during the corresponding period of 1892. This being the case, I could not, with any advantage, make the further representations to the London County Council which the hon. member suggests.

January 2nd.

ANTHRAX.

In answer to Major RASCH,

Mr. GARDNER said, it is a case, I regret to say, that several outbreaks of anthrax have recently occurred at Grays, Essex, and, on communication with the local authority, I learn that the carcass of one animal, subsequently declared to have been affected, was taken to a slaughterhouse and partly dressed before the inspector of the local authority was made aware of the facts. It will be for the local authority to consider whether there is reason to believe that any offence under the Contagious Diseases (Animals) Acts has been committed. I understand that a few animals are pastured in fields where diseased carcasses have been buried, but the responsibility for this rests with the owner of the animals, and I doubt whether the local authority could, with advantage, be empowered to intervene. The steps to be taken to prevent the spread of anthrax are set out in the Anthrax Order of 1892. The execution of this Order rests with the local authority, with whom, however, I will communicate further with reference to the particular cases to which the hon. member directs attention.

Major RASCH asked whether the right hon. gentleman had considered the possibility of putting anthrax under the same regulations as pleuro-pneumonia.

Mr. GARDNER: Yes. I have considered that question very much during last year, but I am at present advised that there would be no benefit gained by the compulsory slaughter of animals suffering from anthrax.

Mr. JEFFREYS asked the right hon. gentleman whether he had heard of an outbreak of anthrax that occurred lately at Cliddesden, near Basingstoke, which proved fatal to all the cattle grazing in a certain field there; and whether he was aware that a case of anthrax occurred in that same field ten years ago, since which time the field had been ploughed and cultivated and laid down again to grass.

Mr. GARDNER: On communication with the local authority for Hampshire I am informed that the death of a cow from anthrax at Cliddesden on the 5th ult. has been declared, but no further appearance of the disease has as yet been reported. No trace can be found of the occurrence of a previous case in the same field ten years ago, but anthrax was only declared a disease for the purposes of the Contagious Diseases (Animals) Act in September, 1886. With reference to the concluding paragraph of the question I may say that there is no doubt, that when anthrax has once appeared on any land or premises, the disease is liable to recur at uncertain intervals, but the information available would scarcely lead us to think that the germs of the disease could lie dormant for, or be communicable by any herb growing on the land after so long a period as ten years. The probabilities are, I should say, that in this particular instance infection was in some manner re-introduced from elsewhere.

January 11th.

SWINE FEVER IN IRELAND.

In answer to Colonel Nolan,

Mr. J. MORLEY said: A communication as to compensation for pigs killed under the Swine Fever Act was received from the Claremorris Board of Guardians. The Veterinary Department has, however, ascertained through its inspectors that objections have been raised to the amount of the proposed compensation in comparatively few cases. The animals slaughtered are valued either by the inspectors of the local authorities or by independent local valuers of practical experience employed by the Veterinary Department. It has not been pointed out to the Department that the scale of value in Galway and Mayo is 10 per cent. too low as stated. There is no statutory power to give compensation for a pig that dies even though the *post-mortem* examination by the Dublin authorities shows that it was affected with swine fever. Compensation can only be paid for pigs slaughtered, half value for animals affected with swine fever and full value in all other cases. The Veterinary Department is not aware that complaints have been made, as alleged in the fifth paragraph. The object of the Government is to work the Act liberally within its powers, and as evidence that it has been regarded popularly it may be stated that the number of outbreaks of swine fever reported since November 1 last, when the Act came into force, is greatly in excess of the number reported during the two preceding months of the year, as appears from the following figures. The outbreaks from January 1 to November 1, 1893, were 194; the outbreaks since November 1, 1893, were 360.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

The Examinations in London.

THE Written Examination in the various classes was held on December 11th, in London, at the Examination Hall of the Law Society, Chancery Lane, and the Oral Examination at a meeting of the Court of Examiners, held at Red Lion Square, on and between December 12th and 15th, 1893. The following students from the Royal Veterinary College passed their Examination:—

Final Examination.

*Mr. G. A. Hewitt.
„ H. W. Billinghurst, Brighton.
* „ E. R. James.
„ S. H. Skelton, Lyme Tree House, Leyton.
„ A. G. Tegg, Rochester, New York, U.S.A.
* „ A. B. Holland.
„ C. Crowhurst, Canterbury, Kent.
* „ U. Carr.
„ A. C. Wilson, Great Berkhamsted.
„ C. W. W. Brown, Warwick.
„ H. G. Westgate, Attleborough, Norfolk.
* „ J. J. Hawksworth.
* „ W. C. Watts.
„ H. J. Parkin, Melton Brand, Doncaster.
„ G. P. Hollings, Wentbridge, Pontefract.
„ W. Robertson, Edinburgh.

* These have not yet complied with the rules of the College.

Mr. F. Wooff, Catford, S.E.
* „ E. C. Seldom.
„ H. Custance, Oakham, Rutland.
„ A. H. Stroud, Hale Street, Oxford.
„ L. L. Stephens, Putney Hill, S.W.
„ E. H. Fisher, Tiverton, Devon.
* „ W. Fowle.
„ J. A. Craft, Reading, Berks.

Second Examination.

Mr. H. Keylock.
„ J. E. Adams.
„ A. Bingham.
†„ J. Murphy.
„ W. A. Wood.
„ A. Boyer.
„ E. M. Jarvis.
„ A. L. Farrant.
†„ H. P. Hogben.
„ F. W. Dowdell.

Mr. H. Robertson.
„ H. Reynolds.
„ H. Williams.
†„ A. P. Calastremé.
„ J. J. Kelly.
„ F. B. O. Taylor.
„ W. H. Chappell.
„ C. A. Powell.
„ T. B. Gresham.

First Examination.

Mr. W. A. Burke.
„ G. F. Gould.
„ H. G. Simpson.
„ R. F. Houston.
„ W. J. Heley.
„ G. H. Butcher.
„ W. E. Murts.
„ F. B. Brandt.
„ W. Mulvey.
„ S. G. Chellow.
„ P. E. Hoyland.
„ J. Pugh.

Mr. A. F. Deacon.
„ E. C. Lowe.
„ C. Sanderson.
„ H. B. Eve.
„ A. J. Curtis.
„ H. M. Durrant.
„ C. Pierce.
„ T. S. Grove.
„ W. G. Gillam.
„ L. Llewellyn.
„ R. Plath.
„ A. R. Grimes.

ARTHUR W. HILL, *Secretary.*

LONDON, *January*, 1894.

The Examinations in Scotland.

THE written examination was held in Edinburgh and in Glasgow, simultaneously with that held in London, on December 11th. Fifty-two students entered for examination in Glasgow and 175 in Edinburgh, one of whom, a student in class A, Edinburgh, was disqualified for a breach of the rules.

The oral and practical examinations were held in Edinburgh and in Glasgow, on and between December 15th and 23rd, when the following gentlemen were successful, and were admitted Members of the Royal College of Veterinary Surgeons:—

DICK COLLEGE—

Mr. G. G. Ashe, Marigh, Kildare.
„ W. E. Elkins, Rugby.
„ W. T. Elder, Dunfermline
„ J. Grant, Broughty Ferry.
„ J. H. Pierse, Tralee,
„ P. L. Smyth, Dublin.

* These have not yet complied with the rules of the College.
Marked thus † passed with great credit.

Mr. E. Hall, Tattenhall, Cheshire.
„ J. Peddie, Edinburgh.
„ A. J. Becket, Dublin.
„ E. J. Conroy, Mountrath.
„ R. W. Dickie, Ayr.
„ A. Fletcher, Rushton, Staffordshire.
„ J. A. Hepburn, Milnathort, Kinross.
„ C. Hey, Normanton.
„ G. Hodgins, Camberley, Surrey.
„ G. W. Lee, Tynemouth.
„ F. R. McRoberts, Belfast.
„ W. McPherson, Rhynie, Aberdeen.
„ T. Durie, Rattie, Edinburgh.
„ R. W. Paley, Middlesbrough.
„ G. M. Pomery, Bodmin, Cornwall.
„ P. Wilson, Lanark.
„ J. H. White, Liverpool.
„ H. E. Powell, Whitechurch, Salop.
„ C. R. Neale, Arbroath.

GLASGOW COLLEGE—

Mr. P. J. Welch, Saffron Walden, Essex.
„ S. B. Clode, Cardiff,
„ J. Magee, Londonderry.
„ J. Kerrigan, Clydebank, Glasgow.
„ H. O'Boyle, Randalstown, Antrim.
„ J. Steele, Dairy, Ayr.
„ A. Greenhill, Glasgow.

NEW COLLEGE—

Mr. T. F. O'Donnell, Raleighstown, Limerick.
„ R. T. Hutchinson, Preston.
„ J. W. Martin, Dublin.
„ H. W. Southall, Driffield, York.
„ J. J. Scott, Southport.
„ A. B. Tully, Kelso.
„ T. Williams, Bethesda, Wales.
„ W. Wintle, Kingsbridge, Devon.
„ H. H. Allen, Pitlochry.
„ J. H. Gillesple, Preston.

The following gentlemen passed their second examination :—

DICK COLLEGE—

*Mr. D. Bolton
„ J. J. Edgar
* „ A. G. Elder
„ W. H. Harvey
„ W. C. Healey
„ P. J. Howard
„ A. Marston
„ A. W. Oxenham
Mr. C. M. Roche
„ T. W. Rudd
* „ J. R. Wardrop
„ J. M. Watson
„ A. Weighton
„ J. Willet
* „ J. E. Young
„ F. S. Clay

GLASGOW COLLEGE—

Mr. L. H. MacQueen
„ D. Wyllie
* „ M. T. Giblin
Mr. R. Griffin
„ A. Spreull

Marked thus * passed with great credit.

NEW COLLEGE—

Mr. A. M. Bruce
„ F. B. Byrne
„ J. B. Cow
„ J. C. DeVille
Mr. G. W. Flynn
„ R. H. Knight
„ A. S. Milne
„ W. Rostron
„ G. Thornton

The following gentlemen passed their first examination :—

DICK COLLEGE—

Mr. W. V. Allen
„ R. R. Arthur
„ R. C. Brayn
„ J. Caldwell
„ J. J. Carr
„ W. F. Casewell
„ B. S. Cockerton
„ H. M. Conyngham
„ D. Dudgeon
„ F. Fail
„ S. S. Forster
„ G. Goundry
„ J. Grant
„ J. C. Heather
Mr. J. E. Holroyd
„ A. Mackay
„ F. Morland
„ A. Mortimer
„ A. McFarlane
„ T. McGhee
„ H. W. Robson
„ W. Scott
„ A. Seller
„ W. Stableforth
„ H. K. Taskar
„ H. O. Thomson
„ R. Wall
„ A. J. Williams

GLASGOW COLLEGE—

Mr. J. G. Reynard
* „ J. Brown
„ F. Russell
„ R. McDonnell
„ W. A. Campbell
„ G. Thompson
Mr. J. McIntyre
„ J. McLean
„ A. B. Sullivan
„ H. McVean
„ W. Neilson
„ G. Broom

NEW COLLEGE—

Mr. A. P. Beesley
„ J. Brittlebank
„ J. A. Connell
„ A. W. Finlay
„ J. H. Lomas
„ J. Lyon
„ M. J. Mitchell
Mr. A. M. Munro
„ J. F. Nicholson
„ J. F. O'Connor
„ D. E. Wilkinson
„ A. Lawrie
„ R. Elliot

R. RUTHERFORD, F.R.C.V.S.,
Edinburgh, December 30th, 1892. *Secretary to the Board of Examiners.*

THE FELLOWSHIP DEGREE, R.C.V.S.

AT a meeting of the Court of Examiners for the above Degree, held under the new rules, on December 7th, 1893, Mr. R. Butler underwent the qualifying examination and passed.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION

(Continued from page 54.)

I have omitted to mention that frequently sufficient care is not observed in taking off a shoe. The smith takes up the foot, places it between its knees and knocks out the cleeches with his buffer and hammer, then with the pinchers he takes hold of the shoe, and using the foot as a fulcrum, draws off the shoe by main force. A careful smith will first gently loosen the shoe by taking hold of each heel alternately, so as to draw the shoe at that part about half-an-inch from the foot, then after a sharp tap or two upon the shoe the nail heads will be seen to project, when each should be drawn out separately.

Marked thus * passed with great credit.

On the 2nd May, 1890, the Lord Mayor of London presided at an influential meeting at the Mansion House, held under the auspices of the Worshipful Company of Farriers, with a view to taking steps in order to bring about a better system of shoeing horses. Lord Moreton, then President of the Royal Agricultural Society, moved "That in the opinion of this meeting it is highly desirable that arrangements should be made to promote the technical instruction and systematic registration of farriers or shoeing-smiths throughout the country." This was seconded and carried unanimously. The scheme was heartily supported by the Royal Agricultural Society and the Royal College of Veterinary Surgeons; funds were subscribed, a registration committee was appointed and an organisation completed which has since been carrying out the objects of its promoters, more or less perfectly and successfully.

Very few extensive reformations can be effected without some errors of detail or irregularities, and this one has been no exception to that rule, but the reform is not the less necessary on that account, and in my opinion it will be an unfortunate thing if the members of the Royal College of Veterinary Surgeons finally decide no longer to assist the Worshipful Company of Farriers in carrying it out.

There is no doubt that in many instances, more especially in country places, changing the designations of the blacksmith to that of some more important sounding title, particularly if the word farrier is selected, will, if carried out, be done at the expense of the particular veterinary surgeon in that locality, who has already sufficient to contend with to maintain the dignity of his calling and "keep the wolf from the door." The public—and particularly small farmers—are only too ready, in these times of commercial depression, to be persuaded that the cheapest shop—no matter how dingy, is the proper one to patronize. It has occurred to me as a possible solution of the difficulty respecting the registration of blacksmiths, that they should not be permitted to use any single letters as R.F. or R.S.S. after their names, but only the words in full Registered Shoeing Smith and never Registered Farrier.

That all members of our profession do not hold similar views upon the principles of shoeing to those which I now express, I am well aware, and I will give you one instance of the fact. A horse-shoeing competition was announced to take place at one of the chief agricultural shows in my county last summer, under the auspices of the Farriers' Company, and having two promising young smiths willing to enter the lists I encouraged them in every possible way to do so. Having duly sent in their names and paid their fees, I procured Professor Brown's little pamphlet, which without being too exhaustive gives, to my mind, just the amount of instruction and advice requisite. It was well studied, and mastered by them both. My parting injunctions as they went to the contest were that they should on no account forget the importance of conservative principles. In the competition they did not disappoint me, their shoes were well turned and finished, and their horses shod expeditiously and well. But both were entirely unsuccessful, the prize-winners went to work on totally opposite principles, setting boldly about their feet with knife and rasp, in fact proceeding much in the same manner as I have described to you in condemnatory terms—not forgetting the employment of emery cloth to finish off their raspings—to the satisfaction of the judge and advantage to themselves.

Stopping Horses' Feet.

Professor Fred Smith's excellent book on "Veterinary Physiology" gives us an analysis of the normal horn of the foot as follows:—

	Wall.	Sole.	Frog.
Water	24·735	37·065	42·54
Organic Matter ..	74·740	62·600	57·27
Salts	·525	1·335	·19
	100	100	100

Thus, although the wall contains about one quarter of its weight of water, the sole has more, and the frog still more, or over 42 per cent. The wall at the heels besides being thinner contains more moisture than the wall at the toe, and this moisture ensures its elasticity. The younger the horn—that is, the nearer to the coronet—the more moisture it contains, the older horn, if uninjured, being tougher and more resisting. Since, then, moisture is such an important element in maintaining the foot in a healthful state, it follows that a liberal supply is desirable; but if a foot has not been deprived of its natural protective structures by rasping, paring, or burning, it will not require that much of that supply shall be from without; the moisture from without as commonly found necessary and supplied by means of stopping, is chiefly called for to remedy the evil results of shoeing abuses. I do not say that an occasional application of the favourite "farmyard and clay stopping" is injurious in those cases where horses are constantly standing upon perfectly dry litter, and seldom taken out, but I think that we, as educated advisers, should suggest to stablemen a less objectionable substitute in cases where some supply of moisture is deemed requisite.

Markham on Stopping.

Markham, from whose amusing "Masterpiece" I have already quoted, tells us that in 1717 the stopping used was similar to that in general use at the present time. He wrote:—

"After travel, ever stop the inside of the hoof with cow's dung, and rub the outside and the coronet with a sward of fat bacon—for that will keep a tough, smooth, and sound hoof. If you mean to preserve your horse's hoofs from any grief whatsoever, you shall, according to the opinion of the ancient farriers, take three heads of garlick, a little bundle of rue, six ounces of alum beaten into powder, two pounds of old grease, and the dung of an ass, boil them all very well together, and therewith stop your horse's hoof once a day. Other farriers used to anoint his hoofs with turpentine, hog's grease and honey, warmed and molten together, of each a like quantity, then pare the foot well, and shoe him in the new of the moon, two or three days after the change."

Effects of Different Kinds of Bedding on Feet.

We shall all agree that certain kinds of bedding in common use are a cause of unsoundness in the feet of horses. I have not yet met with anything so good as wheat straw, but at the present time the price of this is so high that in most establishments a substitute has to be found, and peat-moss is the most common in use in my district. This may be used without doing any serious injury to the hoof structures. Each morning it should be carefully looked over, and all wet portions removed, the remainder being removed to the sides of the stall or box, and every particle picked or crushed out of the feet. But it is not good litter to "rough" horses upon, it will in time cause much softening of the horny structures, and destroy the external parts of the frog. I have known sawdust, as it is called—that is, wood dust from coniferous trees—have a similar effect; but that from other wood, as elm, ash, oak, and such like, I have found a very cheap and good substitute for straw.

Nowadays little care is taken as to the influence of the conditions under which working horses sre constantly kept. In Xenophon's time he recommended a stone pavement for horses to stand upon, to harden their feet and make them tough, and says:—"This sort of pavement will cool, harden and improve his foot merely by his standing upon it, and will preserve the same advantage to his hoofs as he would if he went upon stony roads every day." Other ancient writers upon the subject gave similar advice, which was obviously sound, since they are said to have used no shoes in those times.

Even now horse owners should know that it will be to the advantage of sound feet, if for some hours each day their animals' feet are either exercised or allowed to be brought into contact with firm ground.

I had intended writing some notes upon the methods of preventing slipping, and the employment of leather and other artificial soles and frog-pads, but time does not allow, and if it did, I should hardly be bold enough to read them, and trespass further upon your kind indulgence. Permit me to tender to all present my humble thanks for your patient attention to my somewhat disconnected and commonplace paper, but if the outcome of my efforts is that but a single member of our body has acquired sounder knowledge on this important subject than he hitherto possessed, I shall feel rewarded for my trouble, and be thankful to my feeble "Foot Notes."

Discussion.

Captain RUSSELL opened the discussion on the paper, which he said to his mind hardly offered a large scope for discussion because it was a paper of facts. Although facts were stubborn things, they were not often prepared to find much fault with them. He took it that it was impossible to dispute the anatomical facts which the essay had described. They were all agreed that the consideration of the formation of a foal's feet was highly important, and if it were possible for a horse to travel upon their roads without the formation of its feet being interfered with, it would be better for the animal itself. He had not one word to say in dispute of the points brought forward in the paper, and he thought Mr. Huband was to be congratulated upon the trouble he had taken to prepare so excellent a paper.

Mr. W. CARLESS said he must add his small tribute of praise to the manner in which the paper had been dealt with, but it appeared to him to provoke very little controversy. One or two things however had struck him, and the first was the condition of the foot at birth. Of course it was just as Mr. Huband had described, and the photographs very accurately described the condition of things. He was very pleased to hear him say how necessary it was that the feet of young animals before they were required for the use of man should be attended to by smiths. He quite thought that a monthly examination of the feet from the time the foal was weaned until the time it was shod was absolutely necessary. As regarded the question of heredity, it should be borne in mind that their endeavour should be to instruct and advise their clients not to breed from any animal that had any tendency to malformation. With regard to shoeing, they knew that some smiths had peculiar notions. He thought that one remedy for the too free use of the rasp and knife was to put the smith on piecework and they would then have to stand by and watch the superfluous horn taken off. He certainly thought the shoe should be fitted hot, but of course not too hot. The taking off of the shoe was also a matter of importance, and it was generally left to the lad in the forge to attend to. If the shoe had been on for about a month it did not require much trouble in taking off, but great care was required in removing a shoe that had only recently been put on. It was important that the nails should be drawn out one at a time, because they were apt to do great mischief to the foot by drawing all the nails together. The Registered Shoeing Smith had been alluded to, and he sincerely hoped that no man would be allowed to put such a sign as described over his door who was not a properly qualified smith and who had not passed a practical examination.

Mr. GOOCH, after paying a compliment to Mr. Huband on the manner in which the paper had been delivered, said that he knew that in a great number of instances they could not get horses to work without some protection to their feet, but he had a client who seldom shod any of his horses, either for land or road work. He had two horses now which he drove in a carriage, as

well as an old horse which he drove to market which had never had shoes to their feet. None of the horses on the farm had ever been shod and they were perfectly sound, and in fact from a veterinary surgeon's standpoint, they were far too sound because there was never any mischief as a result of shoeing. As far as the Farriers' Company was concerned, he was one of those who were opposed to the manner in which the examinations were carried out, more attention being paid to the theoretical than to the practical side of the question. At the late Lincolnshire show he happened to be one of the judges in that department, and he was surprised at the manner in which many of them answered their questions, showing that they must have studied to a very large extent the anatomical and physiological condition of a horse's foot. If the Farriers' Company would only pay a little more attention to practical shoeing they would in the future have a much better class of smiths than they had had in the past. Mr. Huband had touched upon the subject of high nailing, and he (the speaker) was of opinion that the closer they could get to the centre of the foot without injury to the animal the better, and particularly as regarded hunters. The great drawback he found in not putting a nail high enough up, was in the shoe being thrown before it had had a good run. The shoe would always hold tighter if the nail was high up. As regarded stopping, he thought that the less they put into a horse's foot the better for the condition of the foot. He thought in the case of horses on road work it would be better to wash out the feet and remove all filthy matter as soon as they got into the stable at night.

Mr. MALCOLM said in the first place he had to thank Mr. Huband as a member of their Society for coming forward as the reader of a paper, and he hoped that others would follow the example he had set them, and so obviate the necessity of having to go outside their Association for such contributions to their discussions. The paper which Mr. Huband had read was a most important one, indeed he knew of no subject that was of more importance to the veterinary surgeon than that which dealt with the horse's foot. He was sure that those of them who were in town practice would find that half their cases had to do with the feet. With their macadamised roads and paved streets he ventured to think that the question of horses being able to go without shoes had been quite exploded. He did not think that any practical man would assume for a moment that the growth of a horse's foot was at all equivalent to the wear and tear of a road if he had to work regularly. It was all very well if it only did a day's work now and then, but he thought no horse could go for long without shoes on their paved streets. At the same time there was, he thought, a great deal too much done in the way of shoeing. If they protected the toe of the foot they did not want to interfere much further with the foot itself. For instance, in Birmingham, he had had charge of the fire brigade horses for a dozen years, and they were only shod very nearly in the Charlier fashion, with a rim of iron round the toe, and the heel and frog left untouched. They went like that from year's end to year's end, and never exhibited the slightest trace of lameness.

There was another point he would like to mention, and that was in regard to the Farriers' Company. He regretted to see so many of their best veterinary surgeons running down the Farriers' Company for their recent action. He believed that when the Farriers' Company undertook to train shoeing smiths they were moved by the very best of motives, namely, that of humanity. That they might not always have done what could have been wished was very likely true. He thought everyone knew that the examinations had not always from the very beginning been what they ought to have been, but it was usually by mistakes that they learnt. Now, the examinations were carried out in such a manner as to preclude the possibility of anyone being admitted a registered farrier who was not a thoroughly competent shoer. Let them call themselves

"registered farriers" if they liked; he did not think it would have any effect upon the veterinary profession. No doubt in some country places the veterinary surgeon was still called a farrier, but if they called every horse shoer a farrier it would soon put a stop to it. He thought it was a very good sign of the times that the Farriers' Company, the various County Councils, and other bodies interested in horses, were taking up the question of getting veterinary surgeons to teach shoers the anatomy and physiology of the foot as well as the proper principles of shoeing, and he trusted nothing that was now being done would put a stop to it. If the Farriers' Company would make their examinations of such a character as would prevent any but good men being admitted, they, as veterinary surgeons would be with them, but if they reverted to the old plan, and sometimes admitted men without a proper test of their capabilities, they would meet with opposition at their hands.

The question of stopping horses' feet had been raised. Personally he was almost "on a fence" about that. As a rule he did not approve of stopping, but he had seen some cases decidedly benefited thereby. He had known farm horses in the spring of the year, when the land was very dry, become very groggy, and on going into the stable at night if they had a good clay dressing with a little salt in it, he had known those horses go on working better than if they had been left entirely alone.

As to the defects of sawdust bedding. After 12 years' experience in sawdust bedding, his opinion was that where horses were at work every day sawdust did them no harm, but where horses were left standing in loose boxes the sawdust heated under the feet, and he believed did considerable harm.

The only other matter he desired to allude to was that of shoe pads. In towns he found them very useful. If they could do without them all the better to his way of thinking; but he knew of nothing that prevented slipping so much as the bar pad. It was a pleasure to drive a horse over a slippery ground when there was no fear of its slipping, whilst animals that were not padded were slipping all over the roadway.

Mr. WRAGG said he was exceedingly sorry that he arrived when the reading of the paper was almost concluded, but he had gathered much that was interesting from the remarks that had fallen from the previous speakers. As for driving horses without shoes, he might say that he drove one for three months, and he found that so long as he confined himself to the London street pavements he travelled well, and the horse never hurt its feet. Directly, however, he drove the horse on a macadamized or gravel roadway, his feet began to wear and split. He had at length come to the conclusion that horses must have some protection for their feet. He quite agreed with Mr. Malcolm when he advocated the placing of an iron ring round the wall. It was all that in his (the speaker's) opinion was necessary. Perhaps it was a fad of his, but he would go further than his friend Mr. Malcolm and continue the iron ring round to the heels. For the last 20 years he had made his shoes out of half-inch square iron, thinned down to the heel, and letting the frog down to take as much pressure as possible. The foot was kept in a much healthier state than with the old fashioned wide wedge shoe. As regards the remark about putting the shoe on hot, he might say that in his practice he had to do with a great many heavy horses and it was imperative that the shoe should be fitted when hot. At the same time he totally disapproved applying the shoe when it was anything like red hot. He thought a great deal of mischief arose from that cause. Horses became lame and contracted what was called "scalded toe," and it was the result of nothing in the world but putting on the shoe when it was too hot. As regarded nails, he quite agreed with his friend Mr. Gooch when he said that the nails should be put high up. In fact he did not care how high up the nails were, provided, of course, that they did not hurt the foot. But when they came to think of the size of the wall, it was often a

wonder to him that horses were not more frequently pricked than they were. In order to avoid injuring the foot the nails required to be driven in with an almost mechanical precision.

Moss litter as bedding has been mentioned. He was of opinion that moss litter was very injurious to the feet, especially in the way in which they were obliged to use it in London. He thought no doubt it would answer in a gentleman's stable, where they could give more time to it, but in the city where the horses often come into the stable dripping wet, the bedding was affected in consequence, and if the horses had to stand upon it he felt sure that it was injurious. He had seen horses go lame and the soles become very much discoloured all round, and in certain parts of the foot they would see the horn crumbling away, and he was quite sure that it was due to the use of moss litter. It heated, and therefore could not be proper bedding. He thought after all there was nothing like straw. Of course, in towns straw was very dear and people had to counteract that by using a substitute. He believed, however, that it was a false economy; but he should prefer sawdust to moss litter.

Mention had been made of the Farriers' Company. He had been connected so much with the Farriers' Company, and he had been pulled very much over the coals in regard to it. The question was at present the subject of special investigation, and he might perhaps, therefore, be excused if he did not say anything about it, except to confirm what had been said by previous speakers, to the effect that no man would be registered in future without having passed a practical examination.

Mr. OLVER said there was one fact especially which belonged to the early part of the paper which deserved more attention than it sometimes received. He meant the early attention which ought to be given to young stock. He was quite sure that the majority of people did not pay sufficient attention to the matter, and that was because they did not know of its great importance. Taking the cue from the President of the College, whom they were very pleased to see there that day, he might say that he also very highly disapproved generally of peat moss litter. He remembered his first experience of it. A client of his had eight or ten hunters, and his father was going to "summer" them for him. They were "summered" on peat moss litter, and when the time came for them to go to work they were not fit. They had stood so long on the moss litter that their feet had become affected, and one could crumble the hoof between one's fingers. Those horses were six months getting well again. Peat moss litter, in his opinion, was a very dangerous substitute for straw.

In reference to shoeing, he should like to mention a system which he had advocated for the past twelve months, and which he had learnt from Mr. Ford, of Leamington, a member of their profession. He meant the use of a sheet of steel under the shoe. He had provided his own horses in that way, and he found it work admirably, because for one thing it was impossible to pick up a stone. Mr. Malcolm had mentioned the question of shoe pads, and in many cases he (the speaker) employed them, and particularly the bar pads in the winter months.

With regard to the Farriers' Company, he knew a certain smith who had the letters "R.S.S." placed on the sign after his name, and people in country places were led to believe that they implied some veterinary degree. He thought that ought to be put a stop to, and he hoped the Farriers' Company would mend their ways, and do what was required of them.

Mr. GREEN said he should like to say a word on the subject of peat moss. He attended to a stud of shire horses, and they were in separate boxes, bedded on peat moss. They got many cases of lameness, and he had also noticed a peculiar discolouration of the sole. They had the greatest difficulty

in keeping the shoes on the fore feet, because the wall seemed to break away and the nails come out. He thought the use of moss litter could not be too strongly condemned, except in the cases of horses which received a great amount of attention, and had their feet washed out night and morning.

Mr. TRIGGER thought more care ought to be given to horses' feet during the early portion of their existence. He thought they did not go so much into the question of heredity as they might, but he thought they all recognised to the fullest extent how traceable nearly every form of foot disease was. With regard to shoeing, he fully agreed that a hot shoe ought to be avoided, and at the same time he much regretted the necessity of nailing iron to the foot at all. Whilst shoeing was a necessity, there was no doubt that an excessively hot shoe was deleterious.

On the question of the registration of farriers, they all knew his opinion, and he had not seen any reason to alter it. The education of the shoeing smith was a necessity of the age, and he was satisfied that the veterinary surgeon could only have proper control over the shoeing smith by having the latter registered. He firmly believed that in the past a great number of men had been admitted who ought not to have been, but he thought that would happen no more. Farriers had now to pass a practical examination, so that in the future no man would be registered who was not fitted for the work.

Captain RUSSELL:—I should like to know whether it has been mooted in any way that veterinary surgeons ought to give up the possession of forges.

Mr. TRIGGER: I don't think it has got beyond one or two individual suggestions.

Mr. WRAGG: I think it would be a good thing if it were so, although I have a forge myself.

Mr. KENYON endorsed the remarks of those speakers who had preceded him.

The PRESIDENT expressed to Mr. Huband his personal indebtedness to him for having brought forward so interesting a subject for discussion. He thanked him very sincerely and only hoped that the example Mr. Huband had set would be emulated by other members of the Association. Regarding the treatment of foals' feet, he quite agreed that the foot of the foal should be attended immediately after birth. It should be regularly examined so as to accommodate it more easily to what it had to put up with during its life. He was also in favour of having headstalls from the very first for the same purpose. He was a strong opponent of moss litter. He had seen several cases of obscure lameness where horses had been littered with peat moss, and the lameness had disappeared when they had been put upon other litter. With regard to stopping, he might say that he never stopped his horses' feet. He cleaned them out, and had them thoroughly washed when they had been out at work. At the same time he had no doubt that stopping would sometimes be advantageons. With regard to shoe pads, he was driving one of his horses at the present time with frog pads and it made a marvellous difference.

As a member of the Council he would not say anything on the subject of the registration of farriers, inasmuch as it was at present *sub-judice*.

Mr. HUBAND then replied to the discussions, and said that whilst there was nothing for him to address them further upon, he had learnt a great deal that was interesting, and no doubt useful, from what had fallen from the lips of those present. He was greatly obliged to them for the attention they had given him during the reading of his paper, and he could assure them that he should have the greatest possible pleasure in doing anything in future for the benefit of the Association.

Capt. RUSSELL then briefly proposed, and Mr. MALCOLM seconded, a hearty vote of thanks to Mr. Huband for his paper, which was supported by the President and carried unanimously.

Mr. HUBAND suitably acknowledged the compliment.

The PRESIDENT announced that the next meeting would be the Annual one, which would take place in Birmingham in February next.

The members present afterwards sat down to an excellent dinner, the President in the chair, and a very pleasant time was spent.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

AN ordinary general meeting of this Society was held on December 7th, at the Royal College of Veterinary Surgeons, 10, Red Lion Square, Holborn. Mr. A. Prudames, the President, occupied the chair; and the other Fellows of the Society present were: Vet.-Lieut.-Colonel Duck, Vet.-Major Kettle, Vet.-Captain Raymond, Vet.-Lieutenant Butler; Professors Shave, Penberthy, Macqueen; Messrs. Butters, Barrett, Caton, Clarke, H. Edgar, Elworthy, Gostling, Garry, Hunting, Hurndall, F. W. Kendall, G. C. Lowe, G. L. Lansley, Mahon (hon. sec.), W. J. Mulvey, Rowe (hon. treasurer), F. Rickards, S. Slocock, F. Samson, Sheather, Staply, Villar, Wragg. There were present as visitors:—Messrs. Morgan Evans, Wilson, Berkhampstead; W. H. Beech, M.R.C.V.S., J. Douglas, and John Malcolm, F.R.C.V.S., of Birmingham.

Professor Walley and Mr. Roalfe Cox wrote expressing regret for non-attendance. Mr. Jarvis tendered his resignation, which was accepted with regret. Mr. Barker became a life member by forwarding cheque for five guineas. Mr. F. Smith, Lewisham Road, was nominated. After an inquiry as to missing instruments, the property of the Society, the following gentlemen were unanimously elected Fellows:—Messrs. T. B. Arnald, M.R.C.V.S., Clapham Common, H. B. Arnald, M.R.C.V.S., of the same address; H. Singleton, M.R.C.V.S., Ealing; W. B. Edwards, M.R.C.V.S., Royal Veterinary College, A. Blake, M.R.C.V.S., Redhill, Surrey, F. O. L. Walpole, M.R.C.V.S., Royal Veterinary College, N.W.

Election of Honorary Fellow.

The CHAIRMAN: The next business on the agenda is the pleasing one of electing Dr. G. Fleming an Honorary Fellow of this Society. The reasons for taking this step have already been fully explained, and it only remains to take a formal ballot in accordance with the Society's rules.

After a ballot Dr. G. Fleming was declared unanimously elected an honorary Fellow.

The CHAIRMAN: I am sure that the members of this Society are glad to have Dr. Fleming still amongst them, even as an Honorary Fellow.

The following address was given by Professor Pritchard

"ON FIRING."

He began by saying that he did not intend to occupy their time very long, as he had heard remarked, and had frequently said himself, that long lectures or long addresses, like long sermons, ought to have a good deal of backbone in them to make them interesting. He should not dwell long upon any one portion of his subject, but simply throw out a few hints in connection with the operation of "firing," or the use of the cautery. His main desire was to evoke discussion, a free interchange of opinion, and he hoped that what little he did—and what they would probably do to a greater extent—would lead to improvement and benefit.

First he asked: Was it advisable to have recourse to the operation of firing? Some time ago there was a considerable amount of discussion between the Editor of *Truth* and correspondents to that journal as to whether it was absolutely essential or wise to fire under any circumstances; and he

might say that the Editor and his correspondents on the one side and his correspondents on the other expressed themselves rather warmly. In saying this he did not imply they were wrong in thus expressing their views. The Editor took the side—the cruelty side—with some of his correspondents, whilst other correspondents argued that firing was absolutely necessary. Personally, he (Professor Pritchard) was of opinion that firing was, under certain circumstances, absolutely necessary; and he would endeavour to give them his reasons for thinking so. In the first place, he was of opinion that this operation produced effects which no application of blisters of any kind or description would produce. Now what was the result of firing? This was another question which he hoped they would argue out carefully. How did the operation of firing act? At one time, when he was a pupil at college, firing was regarded almost entirely as a counter-irritant. At the present day, those best informed dissented from this view almost completely. They considered that if the operation merely acted as a counter-irritant, the same effects might be brought about by the application of various blistering agents. Others argued that it acted as a permanent bandage; that the effects upon the skin were such as to bring about a contraction of it; that it never afterwards became so elastic, and consequently served in this way as a permanent bandage. Now, he did not agree with this. One of his teachers at college used to argue that it was a permanent bandage, while another maintained that it was only a temporary one. He who held the former view alluded to cases where persons who were badly burnt, and thus lost a large portion of skin in the arm, for instance, had that limb gradually flexed in spite of all surgical and other treatment. This contraction of the skin was the result, he contended, of the burning. That argument he (Professor Pritchard) thought might be refuted. The contrary argument advanced was, that however large the portion of the skin destroyed by the ordinary firing operation, it was never decreased in sufficient quantity to act upon the part as a permanent bandage. He—that was, his other teacher—argued that it produced the effect of a temporary bandage more from the deposition that took place on the internal surface of it than by the contraction of the skin, even for a temporary period. Those were some of the arguments adduced in days gone by. He might say at once that he did not agree with any of them. If he agreed with any of them at all it would be with the last. He believed that a certain amount of pressure might be brought to bear as a consequence of the deposition that took place upon the internal surface, as the result of firing. He did not believe that the beneficial effects of the operation—whatever they might be—were due to its action as a counter-irritant. And he did not believe (unless there was a considerable surface of skin destroyed by burning, which should never occur in the ordinary operation of firing), that any contraction of skin or loss of skin occurred to the extent of acting as a permanent bandage. The opinion he now held was one which, he confessed, he had not held many years, because what one was taught in leading strings stuck rather tightly to one in after years, and there was some little difficulty involved in the abandonment of one's early ideas; his opinion was that the deposition which in some instances took place on the internal surface of the skin was sufficient to produce an amount of pressure upon the parts as to bring about an effect that they knew a counter-irritant would produce. He believed that firing as an operation produced more irritation and, he thought, of a lasting character, than any counter-irritant they could apply. He believed that the irritation it created became more deeply-seated, or interfered with structures more deeply-seated than any counter-irritant they could bring to bear—here when he said "counter-irritant" he meant blisters. With the exception of seton he knew no counter-irritant or blister which they could apply that would act so deeply upon the structures as the firing iron. Let

them think of two or three diseases as illustrative of this. He would select one or more from the softer structures, and one or more from the dense material of the body, the basement structures. He would begin with "curb." He had seen many cases of curb treated with biniodide of mercury, with preparations of cantharides, and with a mixture of both, and he had seen even stronger blisters applied; the animal had recovered from lameness, but when put to work the lameness returned. Those animals had been subsequently fired, had recovered from the lameness, and had ever afterwards remained sound. Those of his hearers who had treated many cases of thorough-pin had had this experience of the application of the ordinary blister, namely, that it was just as likely to make the thorough-pin twice its original size as to reduce it. Then the firing-iron came in, and produced an effect that no blister would. He could take them to a horse now which had thorough-pin almost the size of the water bottle on the table on either side of the hock, and this size had been caused by the veterinary surgeon's blistering. Subsequently the animal wss fired, and if it were not for the appearance of the lines, they would not know which hock had been affected. Let them take a little denser structure—the flexor tendons. In ordinary cases in the racing stables of "breakdown," as it is called, blistering was, in the majority of instances, of no use. He did not assert that horses thus afflicted never recovered after blistering, but he did say that in the majority of cases it was of no use; and they knew very well that if those animals were fired—particularly in the case of sprained tendon or ligament—they would recover not only so as to be able to gallop on the flat and win races, but to stand hunting and steeplechasing. He had in his mind's eye a bad case of "breakdown" in a racing animal, which after being subjected to firing gradually got into work, and afterwards won the "Liverpool Grand National." He thought that that was a fair test. Now with respect to some of the harder structures; in cases of ringbone, of spavin, and some other diseases of the bones of the limbs, numbers of cases had he known where recourse had repeatedly been had to blistering, but the lameness had returned, the sound action was but temporary. Then the horses had been fired and recovered. He believed that this was due to the action of the cautery upon the deeply-seated structures, and below the skin if he might so term it; and he thought no blister would produce a similar effect. When he expressed this opinion on one occasion two or three years ago, a gentleman present asked, "What about setons?" Well, he had no objection to setons. He would say further that he believed that to a very considerable extent the seton would produce a similar effect to the firing iron, but he had known cases of seton fail where subsequent firing had brought about recovery. There was another advantage in firing; if they fired a horse they were pretty sure to secure for him a longer rest than he obtained if they blistered him.

Well, thus far he had been advocating firing. He would now speak of the abuse of it. There was no doubt in the world that the controversy which had taken place in the columns of *Truth* would never have been evoked but for the abuse of firing. Firing horses, when matters were positively and beyond a doubt incurable, was an improper thing to do, and, in his opinion, an act of cruelty. Further, he believed that firing a horse that was lame with side bone was a mistake. He considered that all the benefit they derived in that case might arise from the application of a blister. He did not think that any deep-seated action in the case of side bone was calculated to be beneficial, and he very much questioned whether he was not safer in going a little further and saying that it was just as much likely to increase the size of side bone as it was to get rid of the lameness. He knew very many veterinary surgeons who were in the habit of firing horses for side bone, and hence his opinion on this subject might be regarded as a bold one. He believed that

firing was very much abused, and should not be employed if the animal operated upon had not been first properly prepared. Cases of sloughing no doubt occurred over and over again, if the part to be operated upon had not been properly cooled down. The animal should be subjected to a low diet and the action of purgative medicine, and the leg kept swathed in wet bandages. The adoption of this plan he advised in every instance, and more particularly in cases where the animal was "straight out of hard corn," as they commonly expressed it. He should never forget going on one occasion to see a horse not far from Red Lion Square, which had been fired, and whose skin was hanging about his fore legs like a pair of pantaloons. That horse had been subjected to a firing iron while he was yet full of oats and beans, and was not properly prepared. Hence he contended that firing might be abused if the animal was not first properly prepared.

There was an old-fashioned plan when firing was abused, a plan which, he was thankful to say was dying out. Still, it was frequent enough even now in some parts of the country. He referred to the practice of firing animals for the purpose of "strengthening them." It was a very common practice in Ireland. In firing a horse in his hock to prevent curb or spavin the idea was that the hock was strengthened thereby and the outbreak of these maladies prevented. That was an abuse of firing. Again, if an animal, six or seven years old, was affected with spavin, or had a curb, and was sound in action, they had a fair right to conclude that he had done good work, a fair amount of work; and to advise firing when an animal was going sound, was what he called an abuse of the operation.

Then as to the manner in which firing was performed. Speaking generally, there were two forms or modes of firing. One by means of the pointed iron, pyro-puncture, the other in lines, "feather firing" usually termed. The former he need not dwell upon, as they all knew how it was performed, and in what maladies it was usually had recourse to. One remark he would make about pyro-puncture, and it was this: it blemished the horse to the least extent, and had a fair chance of bringing about recovery. Take curb; there was no necessity to blemish the horse's hock. With regard to line firing, he expressed a hope that the day was not far distant when that fearful scoring they used to see, and indeed saw now far too frequently, of putting lines an inch apart or more, and burning almost—if not quite—through the skin, would wholly cease. Suppose they were firing a horse and treated him in this barbarous fashion, the skin was burnt nearly, and, in some instances, absolutely through. However well that animal was prepared, if this were done, they were certain to have a considerable amount of suppuration—if they did not get sloughing pieces of skin between the lines. Now he was firmly of opinion that this was all wrong. If they put the lines closer together and fired more superficially, they would produce just as good effect; they would not run a fiftieth part of the risk of producing sloughing; and they would blemish the animal to a very slight extent indeed. That was his opinion, and he should be very happy to hear any argument in opposition to it.

As to the depth they should go; well, that required a certain amount of experience. The young amongst them must benefit by the experience of those who had gone before them, and those who had fired many horses would have found out how to fire not too deeply, but yet a sufficient depth. No rule or hard and fast line could be laid down upon this point, because for one thing, as the character of the horse was so must be the depth of the line. In the case of a thoroughbred horse, for instance, a lighter hand and a much more superficial line would be needed than in firing a cart horse. Some people said they could determine the depth by the appearance of the line they were making—whether it was a brown colour or a white colour. That, however,

was all nonsense. The colour of the line depended far more upon the heat of the iron. If they had an iron at white heat they would have a white line, and if they did not look sharp they would very soon be through the skin before any brown line appeared at all.

As to the kind of iron to be used that was a matter of taste. Some he had seen firing with a very light and small iron, whilst others fired with a heavy one. He had seen all sizes. Personally he liked an ordinary firing iron having a fair amount of weight in it, and this not only because it would steady the hand, and because it would retain heat much longer than a smaller iron. He advised that they should always, if they could, put their iron into a coke or charcoal fire. This was frequently awkward in London, but there was considerable advantage in it if they could only manage to carry it out; the iron itself did not oxidise, it was always smooth and clean, and did not require to be rubbed upon some substance—stone or brick—before it was used.

As to heat, he liked to have his iron at white heat; he did not like firing with what was commonly called a cool iron. If they used the latter more time was needed to get a sufficient depth into the skin, and on that account they absolutely burnt the skin on both sides of the line to a greater extent than they imagined; besides which they ran a great risk of afterwards bringng about sloughing. But with an iron at white heat he could get a sufficient depth into the skin without cooking the skin on either side of the line.

A great deal was said as to the manner in which lines should be drawn. While some hold that they should be drawn in a transverse direction, others considered they should be drawn obliquely. Personally, he had always advocated and adopted the oblique direction. In firing inside the hock it was usual to make a central line and then draw an oblique or transverse line from either side of it. Never let the points of the three lines meet, or if they did let the central line be simply a singeing of the hair, simply a line to guide formation of the other lines. If they got the points of the three lines at one place they were pretty certain to have a blemish there about the size of the end of their finger. With a little practice they might "feather fire," as it was called, without the use of the central line at all, and the appearance would be quite as pretty. He was not an advocate for firing simply to make beautiful feathers and stars and so on. The consideration which should be uppermost in their minds was the production of the greatest amount of good by the operation with the least amount of mischief to the part.

Firing for sandcrack had been suggested. That was a thing he never did. His treatment for sandcrack was to give support to the margins of the crack and then have recourse to a stimulant to the coronet with a view of bringing about a better secretion of horn. In one form of sandcrack there was a superficial crack at the bottom of the foot, extending in an upward direction it involved a few of the outer fibres. There the firing iron was used and, burning a transverse direction into the hoof beyond the depth of the superficial crack, the crack disappeared. That was the only firing he advocated in sandcrack, and then it was not necessary, because if they filed the nick it would have the same effect.

Speaking of the thermo-cautery, Professor Pritchard would not say he had not used the firing iron, for circumstances over which he had no control occasionally prevented his using the thermo-cautery, but certainly for the last fifteen or twenty years he had regularly used the thermo-cautery, and he preferred it for many reasons. As he often told a client, he could fire a horse in the middle of a forty-acres field with a match, even during a downpour of rain. That was a great convenience, especially in the country, where it was difficult to get irons properly heated and as quickly as they were required. The paramount advantages of the thermo-cautery over the ordinary firing iron were that the line it made was very much closer, the margins were very much

more definite, and the wounds healed, he was going to say, ten per cent. better, but he did not know how to put a percentage in the matter. In using a thermo-cautery he had never had the slightest approach to sloughing, and he could not recall a case in which the parts suppurated to the slightest extent. The usual thermo-cautery was a bottle containing a spirit—benzoline was generally used—to which bottle was attached at one end an india-rubber tube, the other end communicated with the instrument. Then there was a syringe by means of which a stream of air was pumped into the bottle. The vaporised benzoline heated the end of the iron—he called it an "iron" but it was really platinum. The vaporised benzoline passed into the centre tube and a white heat was kept up. At his request Mr. W. H. Beech, M.R.C.V.S., inventor and patentee of the portable cautery, East Castle Street, Bridgnorth, had attended that meeting for the purpose of exhibiting and describing the instrument he had invented, and he (Professor Pritchard) would pause in his remarks until Mr. Beech did this.

Mr. W. H. BEECH then exhibited his invention, and practically tested it, remarking that the platinum point used was one which Professor Pritchard had employed for thirteen or fourteen years, to his (Mr. Beech's) personal knowledge. Once they got a good point they would not require to renew it very often. He explained the difference between his invention and the old instrument. In the case of the latter they were obliged to carry a bottle of spirit with them, whereas in this instrument the benzoline was put in the handle, and no matter what was the position of the handle the benzoline would not run out, only the vapour escaped. A charge of benzoline would last three-quarters-of-an-hour, and a half-pennyworth would suffice to fire a horse.

Professor PRITCHARD (continuing) said with regard to the treatment of horses subsequent to firing, he was an advocate for tying them up for some considerable time. In some parts of the country it was thought unnecessary to tie a horse up after being fired, for more than four or five days. He had been told this by pupils when he had examined them. Well, he should be sorry to let one of his patients loose at the end of that time—four or five days—even with the cradle on. He considered it advisable to keep the horse's head secured until the wound had nearly healed. There was no cruelty in this, provided the horse was exercised daily so as to take the stiffness out of his legs.

A word or two with regard to blistering. It was usual, as they were aware, to apply a blister after firing a horse. This he thought was advisable, because it maintained the action of firing longer than it would otherwise last. It was a common practice with some to apply a blister immediately after the operation; he, however, was inclined to think that an advantage was to be obtained if a few days were allowed to elapse before this blistering was applied. Let the first effects of firing to some extent pass off and then apply the blister; thus they would get a renewal of the action, and the process or result of firing would last longer. Care should be exercised in the selection of the agent used so that it might not be of a character to produce sloughing, and the best agent to prevent this was, in his opinion, biniodide of mercury 1 to 8. He had never seen sloughing follow the use of the biniodide of mercury at the strength he had named.

Mr. W. HUNTING said he had listened to Prof. Pritchard with some pleasure and some disappointment. He had hoped that he would have told them how firing acted, but perhaps one had no right to expect so much. No doubt it seemed to be the correct thing not to believe in anything unless one thoroughly understood it and knew how it occurred, and why. When they came to think of it, however, they realised that this was a wrong idea. With our finite minds we ought to accept any truth, whether we understood it or not. Pro-

vided we were satisfied that the thing existed or obtained, we should not trouble ourselves too much as to how or why it did so, but accept it with simple faith. The question under their consideration was one in which a great deal of simple faith was required, because so-called "experience" of firing amounted to very little. Of course Prof. Pritchard disposed summarily of the theories of a counter irritation. That was a nice expression of the meaning of which he (Mr. Hunting) avowed his ignorance. Nobody yet had offered an explanation except Prof. Williams, therefore they might safely disregard the counter irritant theory as a mere expression without any definite significance, and they might also discard the permanent bandage theory, because they would have to live long in order to find any permanent bandage, no matter how badly the animal was fired. Besides, in the case of the permanent bandage—if that were a theory upon which one could work, they would have to do all their firing in vertical lines and not transverse lines, whereas they knew that transverse lines did act as well as the others. Now the difficulty was when they came to those illustrations which Prof. Pritchard gave them. He told them that firing had done good in curb because he had known a case or cases in which the animal had been blistered and not cured, and then he was fired and became sound. Well, he (Mr. Hunting) could give them more illustrations totally different. Cases where animals had had nothing done to them and yet went sound. Now supposing such horses had been fired, they would have said the firing cured them. Again, blistering did not always cure. He never saw a case of curb in which the horse went permanently lame, no matter what they did with it. Therefore he was not prepared to allow that even the fact of a large number of horses being blistered and going lame, and then being fired and going sound, was any proof whatever in favour of firing.

As to thoroughpin, he saw a case which was beautifully illustrative, a case in which the thoroughpin was about the size of his head. He asked the owner what he was going to do with the animal; have him pole-axed? "No," the owner replied; "my groom will come and attend to that hock." Twelve months afterwards he (Mr. Hunting) saw the same animal and to his astonishment there only remained two large blemishes on the site of the thoroughpin, but the swelling had all gone. Suppose that animal had been fired, what a splendid illustration of the beauties of firing this would have been! What was done in this case? Some irritant was applied, some blistering preparation—the prescription for which, given me as a favour, I lost. It was some irritant; but if a thoroughpin of that size could be removed without firing, what was the use of firing it? Again, with regard to the flexor tendons, no doubt they could all point to cases in which they blistered without any good effect; then firing had been resorted to and the animals became sound afterwards. They had also seen cases where firing had been tried first and had done no good. Then there were cases where there was blistering and nothing else, and where the horses went on all right. In one case he knew of the horse was treated without blistering or firing, and after two years rest was able to gallop as well as ever, and had stood the necessary training for steeplechasing. Again, Professor Pritchard had seen horses blistered for ring-bone without any good result; he had seen them fired and they became sound. Well, what he (Mr. Hunting) wanted to get at was how many cases had they, by careful observation, of a similar kind in which they were assured that exactly similar conditions obtained, where they were able to compare blistering, firing, and any other treatment they liked. A little chloride of sodium on the tail was a most effective thing for some diseases. Applied indefinitely it had an action that was astonishing. Not long ago he met a gentleman in a train. "Rheumatism?" the gentleman inquired of him. "Yes," was the reply. Then he offered him a prescription which he said he

had tried himself and which was very simple. "He said, "You want to take a teaspoonful of mustard seed in milk every day. You must not lose patience. It took me a year and eight months before my rheumatism was any better." Well, if they only gave them time in that way most diseases would disappear, and the difficulty was to know when their firing had been the cure and when their animal had got better in spite of their firing. Somehow he did not think that they had advanced during the last twenty or thirty years one iota towards an explanation of the good derivable from firing. At the same time, though they had not advanced in explaining it he was not disposed to disallow any good accruing from firing. By this operation they gained a good deal more time. It was a heroic remedy. When they had fired an animal, no one else could do much more. The rest was important. Another suggestion of Professor Pritchard's was that the animal should be prepared for the operation—that took more time. If they would allow all the time, the rest, and other things, then it was difficult to know exactly what additional good the firing did. He did not say it did none; he only said that they should keep more correct accounts of their cases, point out every incident connected with them, and try to follow them; but this was very difficult. They fired a horse, and its owner, as soon as it got sound, showed his faith in the treatment by selling it to a friend.

He quite agreed with Professor Pritchard that there were many abuses of firing. Firing with the idea of strengthening the limbs was simply cruelty to animals. Firing for the prevention of lameness he was not so sure about. It was extremely difficult in such cases to know when firing did good and when it did not. As to the method of firing, he thought that it should be done as nicely as possible; one certain effect of firing a horse was to put a permanent mark upon it. He had seen hunters fired by countrymen blemished in the most awful manner. It was desirable that in firing a horse the practitioner should be able to do his work in such a way—so nicely and well that he could leave his trade mark on the animal, as it were, and be proud of it. Making a mark in the direction of the hair would prevent the hair from covering it. Firing transversely to the hair would never leave a mark that would be a blemish, as firing in any other direction would do. He agreed with Professor Pritchard that a man who used the thermo-cautery which Mr. Beech had shown them would be able to do his work much more easily and neatly than a man who used the ordinary iron. He knew no instrument with which a man could do firing more neatly than a good thermo-cautery. With that instrument they got a regular heat, and never a jagged edge as with the ordinary firing iron. At first, however, the thermo-cautery was a little trouble, because in passing over the irregular surface of the part it was more apt to slip than the ordinary iron. The result of his remarks was, he feared, to leave them in the same mixed mental condition with regard to the subject of firing that he was in himself. He did not know what good firing did. He did it himself sometimes. He generally did it with the idea that, if it did no good, he did not know what else would do any good. He should be very sorry to venture upon any scientific explanation of its action.

Professor MACQUEEN said he felt himself very much in the mental condition of the last speaker, although he might hope to avoid addressing them in the same strain. They noticed that Mr. Hunting asked a great many questions and answered them to his own satisfaction. He (Professor Macqueen) was somewhat surprised that Mr. Hunting was not a little better acquainted with the action of a counter-irritant. He should have thought that he would have known that experiments had been frequently performed to prove that a counter-irritant applied to the skin succeeded in altering the circulation of the parts beneath. That had been demonstrated in the case of a blister applied to the loins, where the circulation of the kidney became rapidly diminished.

A similar result has been attributed to a counter-irritant when applied to the chest in cases of pneumonia. Those were statements which were beyond dispute at the present day. With regard to firing, the only thing Mr. Hunting thought about it was that it did something which was not therapeutical—it gained time. Well, he (Professor Macqueen) always understood that in the therapeutics of lameness, in particular, the chief item of treatment was rest, and if a veterinary surgeon succeeded in gaining time by firing, surely that must be included in what were called the therapeutics of lameness. To return to Professor Pritchard: he must say that he did not agree with him when he spoke of a deposit on the inner surface of the skin. He rather inclined to the belief that firing, instead of producing a deposit was more likely to succeed in removing one. With all due respect to Professor Pritchard's views on this question, Professor Macqueen's observation had led him to the conclusion that firing, properly carried out, succeeded in removing the greater part of the thickening that commonly occurred in cases of lameness. He thought that that was an undeniable result of the application of the firing iron—the removal of a certain amount of the thickening of the part. He did not think that the application of the firing iron brought about a deposition of any special tissue, or that it acted as a permanent bandage. Professor Pritchard compared the firing iron with the seton, and seemed to prefer the latter to the former. His illustrations he (Professor Macqueen) would pass over. Coming to the abuses of firing, he agreed with Professor Pritchard that firing sidebones was in the majority of cases uncalled for; but at the same time he must say that he had very seldom found or satisfied himself that sidebone caused lameness. As to the preparation of the part, he did not quite go the length of Professor Pritchard. There might be something in the statement that a horse which was "off hard corn, full of oats and beans," was not a proper subject for the application of the firing iron; but he must say that he did not agree that because a horse happened to be in good condition he was in a worse state for the application of the firing iron. He did not believe in the statement (Professor Pritchard did not make it) that firing was likely to strengthen a horse's hock. Professor Pritchard made a remark about firing a spavin in a sound going horse. He never heard of that practice, Professor Pritchard preferred point firing to line firing; he objected to the blemishes that line firing was apt to produce. He preferred line firing because he believed it was much more efficacious than point firing. He believed that line firing had a better effect than point firing. Professor Pritchard objected to deep and widely-placed lines. He (Professor Macqueen) objected to deep lines, but he could not see how anyone could urge objection to widely-placed lines. He thought there was a great mistake in firing too deep—in firing through the skin. He was not, however, aware that many practitioners did fire through the skin, save by accident, and if they did so they ran the risk of sloughing, and that was a dangerous thing to risk. Professor Pritchard preferred close lines to widely-placed ones, and he (Professor Macqueen) was in favour of closely-placed lines, provided the firing was properly carried out. He now came to a point where he differed from the Professor. Professor Pritchard talked about the colour of the line in firing as nonsense. The colour depended, he said, upon the heat of the iron, and he referred to the thoroughbred horse where, if one fired with the expectation of seeing a certain colour, the iron would be through the skin before one knew exactly when.

Professor PRITCHARD: If the iron were at white heat.

Granted, but even then he differed from the Professor. He maintained that a thoroughbred's skin was not different in its constitution from a cart horse's skin: and the proper application of the firing iron would bring different colours to view according to the depth of penetration. He believed that in most cases

attention to the tint of the line was of considerable value to the operator. With regard to the kind of iron, he did not think there was any special iron that was better than another, so long as it was shaped like an ordinary flat-edged firing iron. As to the direction of line, he was in favour of the oblique direction. He disagreed with Professor Pritchard as to the use of firing in cases of sandcrack. Professor Pritchard said he would not fire in sandcrack. He mentioned that his principle in treating sandcrack was to give support to the sides of the crack. Now his idea of treating sandcrack was the very opposite : he diminished the support of the sides of the crack in order to diminish friction, and he certainly recommended firing in many cases of sandcrack where there was no great local pain, and where the horse was going fairly well. He fired with the object of diminishing friction, and he believed that it was a matter of no great importance whether the line was parallel to or across the crack. Then they came to the instrument that was to be used, and the thermo-cautery was recommended. He had used Paquelin's thermo-cautery, and if every horse was to be cast then the thermo-cautery was a useful instrument, but if a horse was to be fired standing he should certainly select an iron every time for the operation. In such cases he did not think the thermo-cautery was a convenient instrument to use, but it was possible that Mr. Beech's instrumeut would be more suitable. He preferred an iron with an unusually long handle, and with such an instrument he believed that one who was accustomed to use it could do as good work as the thermo-cautery could produce. As to the wearing out of the iron, its edge becoming rough and its head losing heat—all these were matters of detail. He had passed over some things Professor Pritchard said, because he did not think they admitted of argument. They were all acquainted with the conditions and with the difficulties of general practice. They knew that a horse that was presented to them lame from some cause required treatment; and while Hr. Hunting's idea, if carried out, might be more humane, they must look to general practice, and general practice in treating lameness was to do something ; and according to their intelligence they did what they considered best. They applied a blister, or they fired the skin and afterwards blistered, and there was not the slightest doubt that they succeeded in many cases in getting rid of the lameness in a shorter time than if the horse was left to itself. If the function of the profession was to shorten suffering, to shorten idleness, then he thought that they succeeded to a certain extent with a blister ; but in many cases they would succeed quicker, and give better satisfactiou to their clients, if they fired without any unnecessary delay.

(To be continued.)

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held in the North Eastern Hotel, Darlington, on December 15th, 1893, Mr. J. G Deans, President, in the chair. There were also present Messrs. F. R. Stevens, W. T. Brigg, G. J. Harvey, C. G. Hill, C. T. Holmes, and W. N. Dobbing, Darlington ; P. Snaith and H. H. Roberts, Bishop Auckland; A. A. Stevens, Durham; A. Peele, West Hartlepool ; W. Awde, Stockton-on-Tees ; Mr. Morton, Darlington, was also present as a visitor.

Apologies for non-attendance were received from Professors Walley and Williams, Messrs. Thos. Greaves, J. E. Peele, and John Nettelton.

Mr. C. T. Holmes, M.R.C.V.S., Darlington, was elected a member of the Association.

Mr. MORTON read a communication on a case of brain disease in a horse

which had been under the treatment of Mr. Stevens, and a *post-mortem* examination of same revealed the presence of two tumours, which no doubt were the cause of the mischief. A discussion followed, after which a vote of thanks was accorded to him for the trouble he had taken. Mr. Snaith then read some notes he had prepared on a case of fractured cervical vertebrae,; he also produced the bones for inspection, which proved most interesting, and he was accorded a hearty vote of thanks.

Mr. STEVENS then moved the following resolution, of which he had given notice:—"That the attention of the Royal College of Veterinary Surgeons be drawn to the notice given by the Board of Inland Revenue, that methylated spirits cannot be used by veterinary surgeons without the formulæ being submitted to the Board, and that in no case can it be used internally as a medicine."

Mr. SNAITH seconded the proposition, which was carried unanimously, and it was decided to ask Mr. J. E. Peele to bring the matter before the Council.

Mr. H. H. ROBERTS (Treasurer), then presented the annual report of accounts for the year ending August, 1893, which was accepted, on the proposition of Mr. SNAITH, seconded by Mr. PEELE, and several accounts submitted were ordered to be paid.

A large collection of dental instruments having been submitted, it was decided to purchase Professor Robertson's tooth forceps from Messrs. Arnold and Sons, and Thompson's tooth shears from Mr. C. H. Huish.

A letter having been read from Mr. G. E. Nash, of Richmond, stating that he was unable to reconsider his resignation which had been sent in at the last meeting, it was decided to accept it with regret.

Three separate charges of conduct disgraceful in a professional respect were brought by one member of the Association against another, the first being that of blowing a horn when driving through the country villages as a means of advertising himself; second, cutting down contracts by tendering for a lower sum than his professional brethren in the same town; third, by having a stall or stand in the market for the purpose of taking orders and selling medicines. A lively discussion followed, but as no previous notice had been given of the introduction of the subject, it was decided to adjourn its consideration until the next meeting.

In the meantime it was decided to draw the attention of the Council of the Royal College of Veterinary Surgeons to the fact, that although power is conferred upon them by Charter to deal with members of the profession who are guilty of disgraceful conduct, no code of ethics has yet been drawn up by them for the guidance of the profession, and the members of this Association are unanimously of opinion that it is high time that such offences were defined.

It was also decided to ask Mr. J. E. Peele to bring this subject forward for consideration at the next meeting of Council.

W. AWDE, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE Quarterly Meeting of this Association was held at the Blackfriars Hotel, Manchester, December 15th, 1893. Mr. Thomas Greaves in the chair.

Present:—Messrs. A. Lawson, T. Hopkin, J. B. Taylor, A. Munro, R. S. Reynolds, E. Faulkner, G. G. Mayor, J. Norbury, S. Locke, R. Hughes, J. L. C. Jones, H. D. Chorlton, W. S. Shore, A. M. Michaelis, J. Hall, H. Ferguson, W. Ackroyd, W. Dacre, E. E. Wood, W. Near, Dr. Delépiné, Mr. Radcliffe, Mr. S. Lambert, Surgeon-Colonel Leake, Surgeon-Major Wolsey, Veterinary-Lieutenant Meredith, Messrs. C. Harrison, H. Locke, H. C. Harrison, R. Scott, and P. Black.

Mr. Walter Ackroyd, M.R.C.V.S., of Hebden Bridge, was unanimously elected a Member of the Association.

Mr. GREAVES proposed that Mr. George Gartside Mayor, of Kirkham, be President for the ensuing year. Seconded by Mr. HOPKIN, supported by Mr. E. Faulkner, and carried unanimously.

Mr. MAYOR returned thanks, and trusted that the members would support him to their utmost during his term of office.

Mr. R. Hughes, of Oswestry, was elected Treasurer, and Mr. H. D. Chorlton, of Manchester, Secretary, both unanimously.

Mr. J. H. Carter, of Burnley, and Mr. J. L. C. Jones, of Manchester, were unanimously elected Vice-presidents.

Messrs. Locke and Ingram were elected Auditors for the ensuing year.

Mr. HOPKIN proposed a vote of thanks to the retiring officers making special reference to the admirable manner in which the President, Mr. W. A. Taylor, had served the Society. Seconded by Mr. A. LAWSON, supported by Mr. E. FAULKNER, and carried unanimously.

Mr. S. LOCKE replied on behalf of the President who was unavoidably unable to attend, and thanked the Association for the kind support which had been given to him during the year, and hoped that the same generous feeling and assistance would be accorded to the incoming President, also that the Lancashire Veterinary Association would continue to extend and prosper.

Mr. ALEXANDER LAWSON suggested an alteration in the hour of the meetings of the Association to ensure a better attendance, and moved "that the hour of meeting for tea be 5 o'clock with business at 6 o'clock as formeriy and that the day be Wednesday."

Mr. R. HUGHES, of Oswestry, proposed as an amendment that the day be Thursday, and the motion thus amended was carried.

On being put to the vote the amendment was carried.

Mr. HOPKIN referred to the death of Mr. J. T. Thompson, F.R.C.V.S., of Sheffield, and moved that a letter of condolence be sent to his family, which motion was carried unanimously.

A vote of thanks was accorded to the Chairman, and after tea the new President assumed the chair, and Professor DELEPINE delivered a lecture on the "Spread of Tuberculosis in the Body." The lecture was demonstrated by means of numerous dissections.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A MEETING of the Montreal Veterinary Medical Association was held in the lecture room of the Veterinary College, 6, Union Avenue, on December 7th, the hon. president occupying the chair for the evening.

After the reading of the minutes of the previous meeting and transaction of regular business, Mr. A. H. Hall reported a case—operation on the pig—which was successfully performed, and good results obtained. It also brought out considerable discussion from members present.

Mr. J. R. HOLLINGSWORTH read an essay on "The External Parasites of the Horse," describing the different species of the various parasites, vegetable and animal, their mode of living under their varying circumstances, such as occupying different parts of the animal body, their manner of propagation, tenacity of life, and their affects on the animal system, producing many forms of disease, external and internal, which in many cases are contagious to man and beast.

Professor D. MCEACHRAN, in his remarks, stated that the chief difficulty in treating contagious diseases produced by these parasites was due largely to lack of attention and proper regard for cleanliness of surroundings. He also

gave treatment in detail by which these troublesome diseases might be eradicated.

The next essayist, Mr. J. McLEOD, presented an elaborate paper, the subject being "Pleuro-Pneumonia Contagiosa in Cattle." Firstly he discussed the early history of this highly contagious disease in the bovine species as early as 350 years B.C., also referring to the various outbreaks occurring within the past 180 years in Great Britain and the United States, and the enormous loss of stock and capital invested, and the great expense to the different countries in trying to suppress these epizootics. The origin of this disease is not definitely known. The period of incubation is indefinite, the diagnosis not always certain. The symptoms were described minutely and the general appearances and course of the disease, showing variations that take place in the various stages while running its course, as observed by methods at the disposal of the veterinary practitioner. He also gave an account of rules and regulations of quarantine as adopted and rigidly enforced in that country and others, and theories in regard to the commencement of disease and epizootics resulting therefrom. The general appearance, as shown by *post-mortem* examination, was outlined and pathological appearances minutely described. Methods of prevention by inoculation and processes for applying the different remedies were mentioned.

The subject being so important, and owing to its magnitude, it was decided to call a special meeting, which was held on December 11th, the chair being occupied by Professor D. McEachran, and subsequently vacated in favour of the president, Professor Adami. The meeting was then open to its members for discussion on the above subject.

Professor McEACHRAN, in his opening remarks, stated the subject was a most important one to the veterinary practitioner in Canada to-day, on account of the embargo placed by England on their cattle, owing to errors in judgment of officials of the Imperial Government. He suggested the appointment of a Bacteriologist in England for the purpose of investigating bovine lung diseases, with a view to the discovering by pathological and bacteriological investigations reliable means of arriving at correct diagnosis. The recently reported cases of pleuro-pneumonia contagiosa in England in cattle shipped from Canada to that country, have been investigated in Canada, and no signs of this disease have been discovered. Portions of the lungs of two recently suspected animals have been examined microscopically by Professor McEachran and Professor Adami, their opinion being that it was not pleuro-pneumonia contagiosa, thus proving that Canada is not affected by this disease.

The PRESIDENT addressed the meeting, stating that there was considerable uncertainty in dealing with pleuro-pneumonia contagiosa, and great care should be observed in diagnosing, especially for governments, thus saving trouble and expense. He advised slaughter of one animal suspected to arrive at a certainty.

Professor ADAMI then described minutely the appearance of the tissues and organs as presented on *post mortem* exnminations, describing the changes that had taken place as produced by the disease, also variations in colour, size and markings of lung tissue, etc., and the effect of diseases allied to it, and their different changes as compared with this particular form of pneumonia.

Specimens were shown of genuine English pleuro-pneumonia, and compared with sections of what the British Veterinary Inspectors call Canadian lung, but which Professor McEachran states would be more appropriately named transit pneumonia, as no such disease exists in Canada, and is only seen in animals travelling by railroads or an ocean journey.

After a prolonged and interesting discussion by the members, the meeting was finally adjourned for two weeks.

ONTARIO VETERINARY COLLEGE.

THE Christmas examinations of this very successful institution took place on December 20th, before the Government Board of Examiners. A number of students, hailing from different parts of the continent of America, went up for examination. After undergoing a searching examination, the gentlemen named below were successful in passing, and received their diplomas:—Irwin W. Drinkwater, Rochester, N.Y., U.S.; Thomas Flood, Stanley, N.Y., U.S.; Thomas A. Graham, Claremont, Ont.; F. J. Hassard, East Caledon, Ont.; Charles V. Hedges, Circleville, Ohio, U.S.; Matthias H. Kuhl, Neenat, Wis., U.S.; William Longenecker, Lititz, Pa., U.S.; Walter Scott McFarlane, Niagara Falls, N.Y., U.S.; J. H. Medd, Auburn, Ont.; M. H. Moore, Listowel, Ont.; Samuel Emery Moyer, Easton, Penn., U.S.; Coleman Nockolds, Abilene, Texas, U.S.; Henry Nunn, Bolton, Ont.; Herbert S. Perley, Ottawa, Ont.; Argo Raymond, Tilsonburg, Ont.; William Readhead, Corning, Iowa, U.S.; Howard L. Stein, Kutztown, Pa., U.S.; George R. Stewart, Arkona, Ont.; W. B. Telfer, Lowville, Ont.

Primary Examinations.

William J. Rooks, anatomy; William Schad, anatomy; John W. Welch, anatomy.

THE ONTARIO VETERINARY MEDICAL ASSOCIATION.

THIS Association held its annual meeting in the Examination Hall of the Ontario Veterinary College on December 21st, the President, J. Wende, V.S., of Buffalo, New York (a graduate of the Ontario College), in the chair. Much routine business of interest to the members of the profession in Ontario was transacted, after which the President read a valuable paper on "Pyæmia in Foals, caused by Phlebitis Umbilicatus." He holds the condition due to minute embolisms, discarding the bacteriological origin of the disease.

After discussion, the reception of reports, and the election of officers, the following resolution was proposed and carried unanimously:—"That this Association, being in a position to know the facts of the case, desires to place on record its positive opinion that contagious pleuro-pneumonia does not now exist, and never has existed in the province of Ontario." The Association then adjourned.

THE BOMBAY VETERINARY COLLEGE.

Lecture on Mule Breeding.

VETERINARY-COLONEL J. H. B. HALLEN, C.I.E., Inspector-General of the Civil Veterinary Deparment, gave an interesting lecture on mule breeding at the Bombay Veterinary College last November. He had brought to the College six fine Persian donkey stallions, which he had purchased for Government mule breeding operations, to illustrate his lecture. In the course of his remarks, he said that many people looked upon a donkey as a useless and stupid animal, but this animal possessed as much brain as any other, and, in fact, is more intelligent than the horse when it is properly treated. Instances were related how donkeys in England sometimes used to open gates where horses failed. In England the animal is well fed and taken care of, and hence does much work, whereas in this country the people have a prejudice against it. With all his ill-treatment, he is most useful even here, and does more work in comparison with its proportions than the horse. Donkeys could work under most unfavourable conditions, and live on almost nothing by picking up

whatever they could get in the course of their wanderings, and often working ten hours at a stretch, covering ten to fifteen miles with loads weighing from sixty to eighty pounds. The stupidity and the dulness of the Indian donkey is solely owing to its bad treatment; as an example, an Arab horse is quiet and affectionate. When sick it takes its medicine without trouble, and gets cured easily too. Compare a Waler, an animal used to rather harsh treatment in its young days. Walers are often semi-wild animals in Australia. The first time they meet man is when they are lassoed for castration; the second time they are lassoed and taken up for sale. They naturally fear man, are timid and ill-mannered, and when sick will die through fright unless, perhaps, they are given a sound thrashing to make him forget their sickness for a time whenever that is practicable. Such is the case with the Indian donkey; it is the fault of his bringing up, and not the fault of the poor beast. Speaking of foreign donkeys, he mentioned the large Italian donkeys, which are so useful to the peasants of that country, doing most of the ploughing and carriage work. The magnificent donkeys of France, especially of Birtu, which are used almost as horses: these animals, though good in their own native place, where they have a cool climate, are not suited for the Indian climate. Many were imported into this country, but they did not survive long. In Abyssinia the donkey is a royal animal: they use him for riding purpcses, and prefer it to the horse, for the nature of the country is such that only this hardy animal could travel over the steep hill-paths of that country. In India we have well-fed donkeys in the Punjab. In the Konkan they are a miserable lot, small and deficient in bone, for the soil in these districts is deficient in lime, and lime being an essential requisite for bone formation, the animals suffer much. There is a breed of wild donkeys in Cutch, Sind, &c. These animals, though small, are noted for their fleetness and intelligence. It is a very difficult matter to catch them, and often a rider on horseback will have to drive them over forty miles with relays of horses placed every five to ten miles in order to catch one of these animals. The Persian donkey is the best suited for mule breeding in India. In its native haunts it lives on mountains during dry weather, and descends to the valleys during cold, and lives upon the grass which grows in these places. Mule breeding in India could be successfully carried out in the mountainous districts with a dry soil and good grass, but not in the low-lying lands with soil deficient in lime. The mule is one of the most useful animals; it is a very hardy animal, and is capable of doing much work, and it is remarkable that they live to a very old age. They will live upon even the bushes and thorns growing in the jungles; but one thing noteworthy in this animal is that it will never drink dirty water. It is a very fortunate provision of nature, and explains why this animal is so free from disease. The mule can be used in carriages, ploughs, and for pack work. The lecturer gave an instance of a pair of mules used for carriage work fetching a thousand rupees. As regards their power of work, a pair of mules have been seen to pull a gun in the dry bed of a river where a team of horses had failed to move it an inch. Mule breeding is one of the most paying agricultural industries of India, and could be carried on with a very small capital. The lecturer related where he had purchased a pony mare for Rs. 20, and which, after giving a fine foal, was used for mule breeding, and in time produced five or six mules worth Rs. 150 to Rs. 200 each. Another point in favour of mule breeding is, that where pony mares suffer from such diseases as spavin, ringbone, etc., they could here be made use of, as their progeny by a donkey are not liable to inherit these diseases, whereas such mares would be of no use for horse breeding. Speaking of the points of donkey stallions, the lecturer continued that a donkey stallion should have a straight back, this being very important, as a mule with a roached back, or one with a dip, is unsuited for pack work, as it is liable to

get sore back and gall. They should also have deep chests and be well ribbed up, neck not too short, and the shoulders not too thick at the top. The hind legs should be straight and apart from each other. As regards the pony mares used, they should be wide in the pelvis, and should have their hind legs set wide apart. In conclusion, he said that many of the Hindoos were unreasonably prejudiced against mule breeding. This should not be the case, and advised the students to take every opportunity of rendering help to others and giving information and advice on subjects such as these to their neighbours when they go out in the country, even if such things do not fall within the province of their profession.

Veterinary-Captain MILLS, Principal of the College, thanked Colonel Hallen, on behalf of those present, for his great kindness in sparing the time from his multifarious duties to come and deliver such an interesting and instructive lecture. Mule breeding was a subject of no mean importance, and was one which it behoved all connected with the Veterinary profession to their utmost to encourage. No army could take the field unless supplied with efficient transport. Now how is this efficiency to be attained? The answer is simple, viz., by having at all times ready, in case of emergency, an ample supply of mules, as it has been indisputably proved that this animal is second to none for Army Transport purposes. Although mule breeding was an important industry from a national point of view, still he considered that more attention should be given to the improvement of indigenous breeds of donkeys. In many parts of India he is a despised, neglected and degenerate animal, long-suffering and patient, and worked far beyond his capabilities. This no doubt can be accounted for by the fact that he is considered to be an animal only fit to be the helpmate of low-caste natives. Surely he deserves a better fate; he hoped, however, that with the extension of education the prejudice against the donkey would to an extent die out, and that he would be given a better position in the animal world.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

THE 16th general and 3rd annual meeting of the above Society was held at the Blackfriars Hotel, Manchester, on December 15th, 1893; Peter Taylor, Esq., the president, in the chair. Present: Messrs. Thomas Greaves, J. E. Scriven, R. S. Reynolds, J. B. Taylor, T. Hopkin, E. Faulkner, and the Secretary.

Letters of apology for non-attendance were received from several members.

The PRESIDENT then addressed the meeting. He said that he was very pleased and gratified at once more meeting them at the annual gathering. Several cases during the year had been brought before the officers, and advice tendered, and in two cases actions at law had been taken against members, both cases were defended by the Society, each resulting in a verdict for defendant with costs. He was sorry to refer to the fact that members of the profession, and even of this Society, thought fit to appear against a professional brother in a case of this kind. He could not speak too strongly in condemnation of such conduct; it was incumbent on every member to give assistance to his fellows when in trouble, and not do his best to convict him.

He was pleased to say there had not been any claims made against the Benevolent fund during the year, and he thought the new arrangement of not transferring any money from the Defence Fund to the former fund until it had reached £600, was the proper course to adopt, as we might be called upon at any time to defend cases which might cost us large sums, and we are then prepared for contingencies.

The SECRETARY said he was pleased to report the continued usefulness of the Society. During the year we have had several applications for assistance, and in two instances actions at law were taken against members, and as you have already heard, both cases were successfully fought, the veterinary surgeons thus vindicating their professional position. We have now 135 members. We have added 13 new members during the year, a steady increase, but nothing like the number we ought to have considering the immense advantages to be gained by being members, and especially since the entrance fee was reduced to £1 1s., and the yearly subscription 10s. 6d., surely a sum within the reach of all. He would strongly advise every young practitioner to join at once, as he is never free from the possibility of having vexatious and annoying actions at law brought against him. During this year we have lost two members through death, Mr. T. Briggs, and Mr. B. Cartledge, the former being a Member of Council, and ever ready and willing to give his help and assistance to a professional brother.

The TREASURER, in presenting his report, said the year had passed without our funds being called upon, either in respect to the defence or benevolent section. So far it is a matter of congratulation that none of our members, widows, or families have required assistance from us.

The income to the Benevolent Fund during the year was £102 12s. 3d., bringing the sum up to £3,139 11s. 6d. The subscriptions to the Defence Fund being £84, bringing the amount in hand to date £331 15s. 10d. Although this increase in our funds is satisfactory, it must not be thought that these societies are not needed, we see from the cases recorded from time to time that veterinary surgeons are frequently proceeded against in courts of law, in many cases unjustly so. Fortunately for our society our members won their cases; this circumstance is no guarantee that any of us shall be free a single day—the case lately of Mr. Blake, of Bournemouth, will be in the memory of most of you, and I hope members will respond to Mr. Martin's appeal on his behalf. The voice of prudence says "Be ye ready."

In regard to our Benevolent Fund it is very satisfactory to find none of our members requiring any assistance, but we know full well from the applications made to us from time to time from deserving members of the profession, but none of our society. I will give you an extract from a letter which may be taken as an example: "I am grieved to state that my destitution is so great that I do not know how to get common necessaries for my children; I have only been out three times during the last fifteen months, we are often short of bread. I appeal to you all for help."

It is a matter of great importance that men who have wives and children dependent upon them should make some provision while in health and strength, so that in the advent of some unforseen circumstance happening they would be to some extent provided for. Are they so blind to their own interest who will not use the opportunity which is within their reach, one which any reasonable business man would lay hold of at once, in order to secure such benefits to himself, widow, or children; actual experience tell us that it is inexcusable in any man following a profession so full of danger as ours to keep outside the pale of our Society. We wish every member of the profession to join.

The following officers were elected: President. Mr. P. Taylor, Manchester; Vice-President, Mr. G. Morgan, Liverpool; Treasurer, Mr. Thomas Greaves, Manchester; Secretary, Mr. Sam. Locke, Manchester.

Members of Council:—Messrs. J. S. Carter, E. Faulkner, T. Hopkin, R. S. Reynolds, J. E. Scriven, W. A. Taylor, H. Thompson, J. B. Taylor, J. Lawson, R. C. Trigger, Professor W. Williams and F. W. Wragg.

Mr. Pownall, of the firm of Butcher, Litton, and Pownall, of Manchester, and Mr. J. B. Wolstenholme, of Manchester, were elected auditors for the year.

A vote of thanks was accorded to Mr. W. Whittle on his retiring from the Council, in which he had been an active and useful member for so many years.

The meeting terminated after a cordial vote of thanks had been given to the officers for their services during the past year, and to the President for presiding.

SAM. LOCKE, *Hon. Sec.*

LIST OF SUBSCRIPTIONS PAID IN 1893.

	£	s.	d.
James Clark	0	10	6
E. Faulkner	0	10	6
R. C. Trigger	0	10	6
Arthur Hall	1	11	6
Hy. Howse	0	10	6
R. Cox	0	10	6
J. C. James	0	10	6
H. J. Hodges	0	10	6
C. Hartley	0	10	6
Hy. Hogben	0	10	6
W. White	0	10	6
W. H. Anderton	0	10	6
A. J. Jacobs	0	10	6
J. Freeman	0	10	6
Wm. Roots	0	10	6
Wm. Carless	0	10	6
T. A. Dollar	0	10	6
F. G. Samson	0	10	6
Wm. Shipley	0	10	6
W. J. T. Bower	0	10	6
Batt & Son	1	1	0
R. Cartwright	0	10	6
E. Kitchen	0	10	6
R. Reynolds	0	10	6
James Rowe	0	10	6
Sam Locke	0	10	6
Thomas Simpson	0	10	6
J. M. Axe	0	10	6
J. W. Tutt	0	10	6
G. Rugg	0	10	6
T. E. Auger	0	10	6
Lloyd Jones	0	10	6
W. H. Webb	0	10	6
H. Goodall	0	10	6
T. G. Chesterman	0	10	6
C. Morgan	0	10	6
H. R. Perrins	0	10	6
A. S. Gibbins	0	10	6
F. P. Jones	0	10	6
T. Pratt	1	1	0
W. Wolstenholme	0	10	6
J. W. Ingram	9	10	6
E. Beddard	0	10	6
T. Collins	0	10	6
F. H. Hobson	1	11	6
J. Jackson	1	1	0
Prof. Walley	0	10	6
F. Danby	0	10	6
Hy. Olver	0	10	6
T. Hopkin	0	10	6
G. E. Bowman	0	10	6
O. G. Barrow	0	10	6
F. H. Fidler	0	10	6
Ball & Son	1	1	0
J. B. Taylor	0	10	6
A. J. McCullum	10	0	0
H. W. Caton	0	10	6
Sir F. FitzWygram	1	0	0
T. A. Forrist	0	10	6
G. Morgan	0	10	6
E. H. Leach	0	10	6
G. A. Banham	0	10	6
R. C. Edwards	0	10	6
A. S. Macqueen	0	10	6
C. Moir	0	10	6
J. L. Parry	0	10	6
J. Blench	1	11	6
A. W. Mason	0	10	6
T. H. Stevens	0	10	6
F. H. Gibbing	1	11	6
Hy. Snarry	0	10	6
J. A. Overed	0	10	6
F. W. Kendall	0	10	6
B. Russell	0	10	6
W. J. Mulvey	0	10	6
F. W. Wragg	0	10	6
F. T. Stanley	0	10	6
A. S. Butler	1	1	0
Sidney Villar	1	11	6
E. Nuttall	0	10	6
J. L. Thompson	0	10	6
E. H. Oliver	0	10	6
W. H. Bloye	1	11	6
A. L. Butters	0	10	6
B. Freer	0	10	6
W. P. Weston	1	11	6
H. Thompson	0	10	6
A. McConnell	0	10	6
J. S. Carter	0	10	6
E. P. Carter	1	11	6
W. Dobie	0	10	6
T. D. Lambert	0	10	6

LIST OF SUBSCRIPTIONS—continued.

	£	s.	d.
R. Mackinder	0	10	6
E. W. Hoare	0	10	6
F. W. Peacock	0	10	6
O. T. Williams	0	10	6
T. Secker..	0	10	6
H. Ferguson	0	10	6
W. Woods	0	10	6
Israel Print	1	11	6
J. M. Stewart	1	11	6
W. J. Pickering	0	10	6
T. Bates	1	11	6
J. S. Wheatcroft.. ..	1	11	6
H. Beard	1	0	0
T. Greaves	0	10	6
J. Woodger	0	10	6
P. Taylor & Son.. ..	1	1	0
J. L. Barling	0	10	6
J. & A. Lawson	1	0	0
D. Charnock	0	10	6
C. W. Elam	0	10	6
C. Sheather	0	10	6
R. C. Edwards	0	10	6
J. Storrar	0	10	6
Finlay Dun	0	10	6
Thomas Leather.. ..	0	10	6
A. Over	0	10	6
T. W. Cave	0	10	6
McMichaeles	0	10	6
J. A. Taylor	0	10	6
	90	5	6
Deduct			
Sir F. Fitzwygram, Benevolent Fund ..	1	0	0
	£89	5	6

THE VETERINARY MUTUAL AND DEFENCE FINANCIAL STATEMENT.
December 31st, 1893.

CASH RECEIVED.	£	s.	d.
Balance in Bank and in hand, Jan. 1st, 1893	247	15	10
Subscriptions for 1893..	89	5	6
Bank interest, June, 29s. December, £2 5s. 11d.	3	14	11
	£340	16	3

CASH PAID.	£	s.	d.
Secretary's expenses for Council Meeting ..	1	1	0
Room at Blackfriars ..	0	5	0
Paper wrappers, and postal stamps ..	1	11	5
Cash in Bank	324	4	0
Cash in hand	3	14	10
	£340	16	3

THOMAS GREAVES, Hon. Treasurer.

THE VETERINARY BENEVOLENT FINANCIAL STATEMENT.
December 31st, 1893.

CASH RECEIVED	£	s.	d.
Balance in Bank, January 1st, 1893	263	19	3
Sir F. FitzWygram donation	1	0	0
Two dividends, Mersey Docks..	50	12	11
Two other dividends, ditto	22	12	5
Two dividends, Manchester Corporation..	26	5	5
Cash in Birkenhead Docks 1900	0	0	
Cash in Manchester Corporation	900	0	0
Bank interest 2 half-years	3	18	2
	£3,141	8	2

CASH PAID.	£	s.	d.
April 9th, Brown's orphans entered in wrong book	5	0	0
December 31st Cash in Bank	335	8	2
Cash in Birkenhead Docks 1900	0	0	
Cash in Manchester Corporation	900	0	0
Cash in hand	1	0	0
	£3,141	8	2

THOMAS GREAVES, Hon. Treasurer.

Notes and News.

VACCINE REWARDS.—The French Academy of Medicine has recommended the Minister of the interior to bestow silver medals on Veterinary Surgeon Bérard of Angoulème, Delhoste of Perpignan, and Pourquier of Montpellier, for their services in preparing vaccine in 1892.

USE OF TUBERCULOUS FLESH.—The German Minister of Agriculture has informed the Burgomaster of Berlin that the flesh of animals affected with generalised tuberculosis may be sold for food, provided it has undergone sterilisation by superheated steam, and its character is indicated to the public.

INTERNATIONAL VETERINARY CONGRESS IN SWITZERLAND.—The Federal Council of Switzerland has had under consideration the International Veterinary Congress which was to have been held in Berne this year, and has decided that it will not take place until next year, when it will assemble in September.

TUBERCULIN.—At the last meeting of the Highland and Agricultural Society of Scotland, it was moved that the Society's veterinary surgeon be instructed to make tests as to the value of tuberculin in the detection of tuberculosis in cattle. Professor Williams stated that he believed that tuberculin was a most reliable test as to the existence of tuberculosis in animals. Further consideration of the matter was delayed until the report of the Government Commission had been issued.

ACADEMY OF MEDICINE IN FRANCE.—We are gratified to find that at the meeting of this learned corporation in December, M. Mégnin, retired Army Veterinary Surgeon, was elected a titular member, in the place of M. Raynal, deceased. Professor Railliet, of the Alfort Veterinary School, was the other competitor for the vacancy. We congratulate our talented colleague on this distinction, which he has so well deserved because of his numerous and varied contributions to human and animal medicine.

RABIES AT WAVERTREE, LIVERPOOL.—On December 2nd four boys were playing in a public park when they were furiously attacked by a dog, which bit three of them on the leg and one on the arm; it also bit another person on the leg. The dog was destroyed and a necropsy made by Mr. Welsh, M.R.C.V.S., and Dr. Barron, led to the supposition that it was rabid. The injured persons were all attended to by a medical man at Wavertree, and subsequently sent to the Pasteur Institute at Paris for protective treatment.

CONTAGIOUS PLEURO-PNEUMONIA IN AUSTRIA.—In August, 1892, a Bill was passed in Austria sanctioning the compulsory slaughter of all animals affected with contagious pleuro-pneumonia, or suspected of contamination, and it came into operation in October of the same year. In October, 1893, the disease was believed to have been stamped out, as not a case had been reported. On the Continent, Holland (which was the first to extinguish this plague), and Austria are now free from it; the United States has also got rid of it for some time, and our own country may be pronounced clear of it.

THE PARIS PASTEUR INSTITUTE.—The *Annales de l'Institut Pasteur* for the month of November states that the number of persons under treatment for the prevention of hydrophobia is 129, of whom all but eight were French. Five were bitten by animals experimentally proved to be mad, 89 by animals declared by veterinary certificate to be mad, and 35 by animals only suspected of being so. The bites were inflicted in 109 cases by dogs, in 17 by cats, and in one case each by a horse, a sheep, and a pig. No deaths were reported to have occurred during the month of persons who had been under treatment before.

THE FRENCH VETERINARY SCHOOLS.—The French Government having decided to establish at each of its Veterinary Schools, a Chair of bovine,

ovine, caprine and porcine pathology and obstetrics, a *concours* was held at Alfort in December last, at which there were four competitors for the three chairs. The three successful candidates were already *chefs de travaux* at the Alfort and Lyons Schools, and in order of merit they are Professors Moussu, Mathis and Bournay—the first place being brilliantly contended for by Moussu and Mathis. The Minister of Agriculture has posted the first to Alfort, the second to Lyons, and the third to Toulouse.

THE ACTION OF TUBERCULIN.—Dr. A. Klein (Tuberculinwirkung), is of opinion that tuberculin does not act specifically on tuberculous tissues, but that it causes an increase in the power of exciting inflammation and suppuration possessed by streptococci and staphylococci. These micro-organisms are present in the majority of cases of tuberculous disease. The tuberculin increases their potency, so exciting local inflammation and producing a general reaction fever. Experience has shown that a certain number of cases of tuberculous disease did not give any reaction with tuberculin, and in Dr. Klein's opinion these are cases in which the tuberculous condition is uncomplicated by the presence of other micro-organisms.

ACADEMY OF SCIENCES OF FRANCE.—In the list of rewards made by this distinguished body at its annual public meeting in December last, the names of the following members of our profession appear: Barbier Prize, 2,000 francs; this prize is divided between Professor Sanson, of the National Agronomic Institute, for his book on "Normal and Pathological Heredity," and M. E. Gilbert, author of "Centuries of Pharmacy." Montyon Prize, 750 francs, for Physiology; awarded to Professr Laulanié, director of the Toulouse Veterinary School, for his "Experimental Researches on the Correlative Variations in the Respiratory Termogenesis and Changes." In the same prize for Medicine and Surgery, honourable mention is awarded to Professor Neumann, of the Toulouse Veterinary School, for the second edition of his treatise "On the Non-microbic Parasites of the Domestic Animals."

THE HORSES OF THE BRITISH ARMY.—Recent returns show that the whole number of horses and mules possessed by the British Army is within a few of 27,000, of which rather more than 12,000 are with the European troops in India, and the remainder at home, in Egypt, and Natal. The cavalry regiments have 12,000 horses (exclusive of officers' horses, these, as in other branches of the army, being private property); the Royal Artillery, 12,500 horses and mules for riding and gun teams; the Royal Engineers, only about 400; the Infantry, 700; for Transport and Mounted Infanty training and the Army Service Corps, 1,300. The Cavalry regiments, as a rule, have enough horses to mount about two-thirds of their men, the three Household regiments, which number 1,300 non-commissioned officers and men, having 800 horses. Several of the regiments in India can mount more than 500 men, but even these have each nearly 300 men to use them; and in some of the home regiments the disproportion between men and horses is as great, or greater, than in the Life and Horse Guards.

TUBERCULOSIS IN 1892–93.—A return has been issued as a Parliamentary paper, showing the number of carcases seized during the year ended March 25, 1893, by medical officers of health and inspectors of nuisances in England and Wales under section 116 of the Public Health Act, 1875, and section 47 of the Public Health (London) Act, 1891: and of the numbers of such carcases condemned by justices, distinguishing as far as is practicable the number so condemned in consequence of the animal having suffered from tuberculosis. Altogether 3,322 were seized during the year, 382 by metropolitan sanitary authorities, 2,779 by town councils of county boroughs 124 by town councils of other boroughs, 22 by local boards, and 15 by rural sanitary authorities. Of the total number 499 were condemned, of which

155 were the carcases of animals which had suffered from tuberculosis. The returns in many cases show that carcases were destroyed without being taken before justices to be condemned, and that some of these were those of animals that had been affected with the disease.

THE SANGA OX AS A TRANSPORT ANIMAL IN THE SOUDAN.—One of the most important facts, and one which is a happy presage for the future of the French Soudan, says the *Revue des Sciences Naturelés Appliquées*, is the utilisation as a draught transport animal of the Sanga or humped African ox. Hitherto the only animal employed for this purpose in the Soudan has been the ass; the natives, of course, are used to carry loads on their heads. M. Becket, who was sent on an industrial and commercial mission to that country in 1890, in a report to the syndicate of the French Soudan in 1891, was the first to suggest this use of the African zebu. Oxen yoked in the ordinary manner can only be worked on made roads; on loose sand they suffer greatly from the jerking of the yoke, are often thrown down, and at last refuse to go on. Becket believed the dorsel boss on the African oxen could be used for a collar, which, instead of lying on the neck, would pass round the front of this protuberance. When carried into practice, this idea was a great success, even on the most difficult ground, and the natives were delighted with the innovation.

WILD DOGS IN AUSTRALIA.—In the book on "Australia as It Is," a third edition of which has been published by Messrs. Longmans, Green and Co., we find the following in reference to the devastations of the native or "dingo" dog:—"In consequence of sheep being always kept closely in hand during the day, and the shepherd following them attentively during the night, the opportunities for the native dog to attack them are strictly guarded against. It is very different with young calves, however. A cow conceals its calf when newly dropped, and before it is able to follow. It is when thus concealed that the native dog takes the opportunity of falling upon it as prey. There would never seem to be any danger of a native dog killing a calf alongside its mother, and a native dog attempting to do it is one of the grandest sights in nature. The loud, distressing lowing of the cow when danger is thus threatened to her calf is a signal to the whole of the herd to come to her assistance. The signal of distress is answered in a loud bellowing by all the cattle within hearing, and is despatched, as it were, in telegraphic calls far and wide. On, on, they all rush to the cow and calf at a most terrific pace, roaring and bellowing the while, heedless, apparently, of their own safety, in leaping over fallen trees and gullies, and as much infuriated as if a stream of liquid fire were passing through their veins. The best-appointed army in the world would not withstand the onset of one of these herds of cattle, as thousands may be collected in hastening to the rescue of the calf."

ARAB HORSES.—The origin of the best strain of Arabian blood has been related as follows, says a writer in *Harper's Magazine*:—"While Mohammed was fighting his way to greatness he was once compelled to lead his corps of 20,000 cavalry for three days without a drop of water. At last from a hill-top they descried the silver streak of a distant river. Mohammed ordered his trumpeter to blow the call to dismount and loose the horses. The poor brutes, starving for water, at once sprang into a mad gallop toward the longed-for goal. No sooner loosened than came the alarm—false, as it happened—of a sudden ambush. 'To horse!' was blown and repeated by a hundred bugles. But the demand was too great; the parched throats were not to be refused; the stampede grew wilder and wilder as 20,000 steeds pushed desperately for the river banks. Of all the frantic crowd but five mares responded to the call. To these duty was higher than suffering. They turned in their tracks, came bravely back, pleading in their eyes and anguish

in their sunken flanks, and stood before the prophet. Love for their master and a sense of obedience had conquered their distress, but their bloodshot eyes told of a fearful torment—the more pathetic for their dumbness. The danger was over; the faithful mares were at once released; but Mohammed selected these five for his own use; and they were the dams of one of the great races of the desert. From them have sprung the best of Arabian steeds. It can, however, scarcely be claimed that the average horse of the Orient comes up to this ideal. He must have been bred from the 19,995."

Correspondence.

REGISTERED SHOEING-SMITHS.

DEAR SIR,—You may perhaps remember my calling attention in the JOURNAL to the use shoeing-smiths make of the registration system. I enclose a card on which you will see its application. It is the object of the advertiser to impose on the public his ability to act as a "doctor," as the word "Farrier" and the designation of Veterinary Surgeon are by very many people considered synonymous. I think the Farriers Guild ought to stop it.

Taunton. ROBERT GIBBS, M.R.C.V.S.

(The card is as follows:—

Paul Street Shoeing Forge, Taunton (back of London Hotel). F. Weaver R.S.S., farrier, &c. Examined by Members R.C.V.S. and passed, and was duly registered by the Worshipful Company of Farriers. Winner of First Champion, Second and Third Prizes, Open Classes, at the different Horse-Shoeing Competitions, held by the Agricultural Associations. Also specially engaged as Practical Shoeing-Smith for the Horse-Shoeing Demonstrations at the Cornwall Royal County Agricultural Association, held at Liskeard, 1893. F. W. devotes special attention to the horses placed in his hands and they are shod on the latest system and under his own supervision.)

PRIZES FOR CRUELTY TO CATTLE.

SIR,—Cattle shows are often inhuman exhibitions of artificially gorged and under exercised stall-fed animals, which are nevertheless specially-prized victims, which, in the words of Shakespeare, are "fat and scant of breath."

Artificial Fast Fat Flooding.—This unhealthy or morbid condition of the living animal, and of its meat, is intentionally produced by cattle-feeders who by long surfeiting and too closely confining the beast, cause it soon to artificially acquire a feeble, pale, fatty heart, with fatty kidneys, liver, arteries, and muscles or meat. This fast fat flooding is furthered by the poor brute-martyr being long imprisoned within its narrow stall, too often ill-ventilated, thus preventing the natural healthy waste or oxidation of the blood and tissues which should take place by regular natural exercise in the open air. This excessive fattening is a cruelty which both public opinion and the law should prohibit. In the artificial overfeeding of animals at first, the fat is deposited and stored within the loose and pendulous parts of the body, as beneath the skin. Next, the fat invades the kidneys, stomachs, intestines, arteries, liver, and heart. The once powerful, healthy, muscular heart degenerates and decays into a diseased specimen, attended with a weakened, enfeebled, intermittent action. The heart is soon unable to pump and propel the blood forward with sufficient force and frequency. Hence the distressed breathing and the occasional giddiness of these ill-treated cattle. Finally, by partial replacement or substitution, the fat usurps the minute fibres of the meat, where the microscope discovers numerous fat cells in the artificially softened friable muscular elements (*fibrillæ*) as elaborately proved by Mr. Gant, the

surgeon, already, in 1858, by his original minute researches and careful investigations.

Castration and Fat.—Eunuchs, like castrated cattle and carp, when over-fed and under-exercised, are specially apt to accept artificial accumulations of stored surplus fat. Formerly even heifers or young cows had their ovaries or egg-sacs removed with a view to increase their fat. I am informed that this practice is now almost abandoned. Of course, such spayed or castrated cows usually give no milk. In plants, artificial rearing, especially where the soil is too rich, is very apt to bring about a diminution of their reproductive functions, at the same time accompanied by an increase in the purely vegetative states. For instance, the enormous production of succulency and starch formations, which are obtainable in many of the food plants as seen in cabbages, cauliflowers, and fruit trees, is usually at the expense of the reproductive organs. Or, as Darwin said, "in plants the organs of reproduction being no longer able fully to perform their proper functions, a supply of organised matter, not required for the development of the seed, flows into the leaves to render them foliaceous, or into the fruit, stems, tubers, &c., increasing their size and succulency."

Cruelty in Breeding.—Formerly, the fashion or fancy freak of the farmer in a part of Yorkshire was to continually "select cattle with large hind quarters, until they made a strain called Dutch-buttocked." The monstrous size of the buttocks of the calf was frequently fatal to the cow. Thus, in calving, numbers of cows were lost. In his historic "Plants and Animals Under Domestication," Darwin dwelt upon this cruelty.

Barbaric Artificial Abortion.—The eminent meat expert, Mr. William Wylde, in his classical monograph on meat inspection, as the result of forty years' experience, states that in the London Meat Markets he has often condemned there the flesh of female cattle, whose soft parts, besides being brutally torn, lacerated, and inflamed, have also actually had their pelvic bones (those of the lower belly) broken by the savage force of farmers or farm-labourers to anticipate nature's quiet and peaceful delivery at the proper period.

Prizes for Cattle after Slaughter-house Inspection.—At cattle shows no animal should be prized, premiumed, or praised till its slaughter-house inspection should have proved that all its internal organs and muscles or meat were healthy in quality and normal in relative quantity, as compared with the surrounding structures.

Inferiority of Over-fattened Meat.—Fast, forced feeding diminishes and deteriorates the digestive and dietic value of meat, whose fat, except in relatively small proportions, is practically worthless at a meal. Starving people and children are often unable to eat fat, which they may leave untouched on their plates. Solid animal fats are digested with difficulty, hence the advantages of milk where a fat diet is required. Healthy, lean, wild animals, when not tough, are superior in flavour to over-fed and over-domesticated animals, especially the prized Christmas and Cattle Show meats.

Mixed Breeding.—The occasional crossing of wild with too long domesticated food animals would much improve the taste, flavour, quality, and nutrition of our meat supply.

Foreign Lean Veal and Pork.—As eaten in most Continental countries, their lean veal and pork are finer flavour, with higher nutritive and digestive value, than the over-fattened veal and pork supplied in Great Britain.

Signs of Healthy Meat.—Healthy red meats should only show scanty streaks of fat, so as to merely slightly grain or "marble the meat. There should be no excess of fat deposited around and about the meat. On the other hand, from deficiency of fat, the meat of non-castrated or whole male animals is often hard, coarse, sticky and stringy to the touch. On cooking it remains tough and dry. When not too old, and in proper conditions, female

animals and castrated cattle yield a finer flavoured and more tender meat, with a naturally larger proportion of fat than is found in non-castrated males, which in some cases communicate a strong odour to their flesh.

Cook's Perquisites.—Allowing cooks to sell *dripping* (or the fat obtained from roasting meat) as their perquisite may explain why excessive extra fat is not always refused in the kitchen. The business between the local butcher and the "kitchen-stuff" buyer with the cook is not usually advantageous to her employer.

The "Fat" Trick.—The customary conventional trade trick to make the credulous and cheated consumer pay the same price for fat as for healthy meat, naturally free from the organic adulterations of accumulated artificially-bred fat, is now an augmenting abuse.

The Meat Bill.—It appears that in the United Kingdom alone upwards of £175,000,000 is approximately about the annual retail bill paid by the consumer for his fresh-meat supply, whose wholesale or market price first-hand is, apparently, about £90,000,000. Thus some £85,000,000, more or less, is absorbed and appropriated by the middlemen, market monopolists, and the retail distributor, generally a meat vendor, who neither slaughters cattle nor works up their edible "waste" and other commercial bye-products.

J. LAWRENCE HAMILTON, M.R.C.S.

30, Sussex Square, Brighton.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL SOCIETY.

"There is that scattereth and yet increaseth; and there is that withholdeth more than is meet, but it tendeth to poverty."

SIR,—The above beautiful thought has been forcibly impressed upon my mind in consequence of certain appeals made to me privately and publicly lately, on behalf of individual members of my profession; and such appeals, as they appear to me, I am bound to respond to to the extent of my means, and in this spirit I urge my fellow members to contribute of their bounty the help which is much needed, bearing in mind that "he that giveth to the poor lendeth to the Lord."

My connection with the National Veterinary Benevolent and Veterinary Mutual Society for nearly thirty years has brought to my notice many deserving cases of members, widows or orphans of veterinary surgeons, who, by no fault of their own, have found themselves in circumstances the most grievous and distressing. The following is an extract from one letter, and I could give many such, and I earnestly beg that everyone who reads this will lend a helping hand to the sufferers:—"I am grieved to state my destitution is so pressing upon me that I do not know how to get common necessaries for my children. I have only been out three times these last fifteen months. We are often short of bread, and have been weeks without meat and dripping; treacle and bread are our staple, and where we shall get a supply of that I do not know. In charity will you kindly aid us. We are all abstainers; every penny we get goes for food."

"Oh how sad it is when the heart is full."

We have also the appeal of our worthy friend, Mr. John Bean Martin, of Rochester. Everybody who has read the trial of Mr. Blake, must feel a deep sympathy in his case, and will feel it to be their duty to assist him to the extent of their means. Anyone of us may become entangled in a lawsuit any day; let us show the right spirit in this case, and help Mr. Martin. Let him see that the action he has so cheerfully taken is recognised and generously supported by the members of our noble profession.

We have also brought before us a worthy appeal to extend our sympathy to

the father of the profession, Mr. Gamgee, who is 93 years old and bedridden. I hope the profession will generously respond to this case.

I make the above appeal more especially, because none of these cases has any claim upon the National Veterinary Benevolent and Defence Society (they not being members); let us place ourselves in the advantageous and safe position by becoming members, then, by being in these favourable circumstances, we can make happiness by doing good.

THOMAS GREAVES, F.R.C.V.S.

THE BLAKE FUND.

DEAR SIR,—Will you kindly publish names of the subscribers to the Blake Fund in your next issue :—

	£	s.	d.
Mr. Thos. Greaves ..	5	0	0
„ R. C. Trigger ..	2	2	0
„ J. F. Jarvis	1	1	0
„ W. J. Mulvey ..	1	1	0
„ J. W. Edwards ..	1	1	0
„ F. G. Samson ..	1	1	0
Messrs. T. and A. Dollar	2	2	0
Mr. F. Wragg	2	2	0
„ F. G. Chesterman ..	2	2	0
Mr. W. Shipley, senr. ..	1	1	0
„ W. Ridgman ..	0	10	6
„ J. Burchnall	0	10	6
„ E. H. Leach ..	1	1	0
Captain Russell	0	10	6
„ E. Beddard	0	10	6
„ Alfd. Over	0	10	6
„ J. B. Martin ..	2	2	0

J. B. MARTIN, M.R.C.V.S., *Treasurer.*

Subscriptions will be received by me.

ROCHESTER, *January 17th.*

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from T. M. Inglis, Forfar; R. A. Powys, London; R. Gibbs, Taunton; F. C. Mahon, London; G. Thatcher, London; Dr. Duncan, Toronto, Canada; J. Lawrence-Hamilton, Brighton; R. Rutherford, Edinburgh; W. Russell, Cincinnatti; S. Locke, Manchester; T. Greaves, Manchester; W. F. Smith, Lexington, U.S.A.; S. H. Fenton, A.V.D., Bangalore; A. W. Hill, London; A. E. Macgillivray, Banff; W. Awde, Stockton-on-Tees; J. B. Martin, Rochester; A. W. Hill, London; R. Ward, Baltimore, U.S.A.

BOOKS AND PAMPHLETS: *Dr. K. Müller*, Der Milzbrand der Ratten; Bulletin of the Johns Hopkins Hospital; Bulletin de l'Académie de Médecine; Procès-Verbal de l'Académie Royal de Médecine de Belgique; Bulletin de la Société Royale Protectrice des Animaux de Belgique; *Dott. Federico Boschetti*, Delle Affezioni Carbonchiose in Rapporto Colla Setticemia; *M. Ducasse*, Précis de Pharmacie Vétérinaire Pratique; *Veterinary-Major I. Matthews*, Report on Horse-Breeding in France; Fourth Report of the State Live Stock Sanitary Board of Maryland.

JOURNALS, ETC.: *Agricultural Journal of the Cape Colony; Veterinarian; Revue Vétérinaire; Clinica Veterinaria; Journal of Comparative Medicine and Veterinary Archives; Live Stock Journal; Lancet; Archiv für Wissenschaftliche und Praktische Thierheilkunde; British Medical Journal; Repertorium der Tierheilkunde; Modern Medicine and Bacteriological World; Baily's Magazine; Journal of the Royal United Service Institution; Echo Veterinaire; Deutsche Zeitschrift für Thiermedicin und Vergleichende Pathologie; American Veterinary Review; Presse Vétérinaire; Recueil de Med. Vétérinaire; Journal de Méd. Vétérinaire et de Zootechnie; Moderno Zooiatro; Annales de Méd. Vétérinaire; Edinburgh Medical Journal; Mark Lane Express.*

NEWSPAPERS: *South Africa; Baltimore Weekly Sun; Times of India; Montreal Gazette; New York Spirit of the Times; Southern Echo; Cable.*